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for the

District of Columbia Circuit

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BRIEF AND APPENDIX
FOR APPELLANT

IN THE

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA

No. 8295

965

CARL W. GOODWIN AND AMERICAN SEAL-KAP
CORPORATION OF DELAWARE, *Appellants,*

v.

CONWAY P. COE, COMMISSIONER OF PATENTS,
Appellee.

Appeal from the District Court of the United States for the District of Columbia.

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BRIEF FOR APPELLANT.

FOREWORD.

All italics in this brief may be assumed to be ours. Matter appearing in quotations in brackets [ ] is inserted by us by way of explanation.

JURISDICTIONAL STATEMENT.

This is an appeal by the plaintiffs from a judgment (Appellants' App. 79) by the District Court of the United States for the District of Columbia dismissing the complaint.

The suit was pursuant to Rev. Stat. § 4915 (1878), 35 U. S. C. § 63 (1934) [as amended August 5, 1939, c. 451, § 4, 53 Stat. 1212], to obtain a patent upon an article of manufacture, i.e., a snap-on cover for a container. The Patent Office denied a patent for want of invention (Appellants' App. 67-72). For the same reason the District Court dismissed the suit (Appellants' App. 78).

On the pleadings (Appellants' App. 1-5), jurisdiction was conceded; likewise title to the application in the plaintiff-appellant American Seal-Kap Corporation of Delaware.

STATEMENT OF CASE.

Important facts, which are either undisputed or beyond dispute on the only evidence in the case, are as follows:

The article upon which a patent is sought is quite completely defined in claim 4 (Appellants' App. 3) reading as follows:

> "4. A snap on cover for a container having a larger external diameter at its mouth than immediately therebeneath, which cover comprises a sheeted paper having a marginal flange of an internal diameter to engage over the mouth of said container, said flange having a thickened bead portion on its inner face at its free edge spaced from the inner face of said cover for engagement beneath the larger diameter portion of said container, the paper stock in said bead portion containing wax and being in the compressed homogeneous seamless interfelted condition characteristic of having been compacted while in a moist and waxed state, and said bead portion having an internal diameter so little less proportionally than the internal diameter of said flange adjacent thereto that said cover may be snapped on or off said receptacle without injury to said bead."

It is defined in varying scope and terminology in the other claims which are sought, i.e. claims numbered 1, 2, 3, 6 and 7 (Appellants' App. 2-4).

Appellants' snap-on cover is made from a circular blank or disc of sheeted paper which has been impregnated with wax and moistened (Appellants' App. 28, top). The pretreated moist wax-impregnated blank is then formed under high compacting pressure in metal dies. The first operation in the dies is to convert the disc into a cup by bending the circumferential marginal edge at right angles to the central portion of the disc, to form a cylindrical flange or rim as shown in Fig. 5 of the application drawings (Appellant's App. 32). A portion of this flange or rim is then die-compressed and compacted in successive stages or operations (Appellants' App. 32, Figs. 6 to 8) to form the specified inturned bead.

The finished snap-on cover or lid is shown in Figs. 3 and 4 of the application drawings (Appellants' App. 31). It is shown applied to a paper cup in Fig. 3 and to a glass container in Fig. 4. One of these articles is in evidence together with a glass container (Appellants' Ex. 3) and the Court may readily test its "snap-on" characteristic by removing the cover and then pressing it back onto the glass.

In a modified form, the paper blank is first marginally slit as shown in Fig. 9 (Appellants' App. 32) so that when completed, the bead (but *not* the flange) is provided with slits. These slits not only prevent injury to the bead of the cover but, more important, also prevent injury to a paper cup when the cover is applied and repeatedly re-applied thereto (Appellants' App. 29; 11, 46Q.-49Q.). One of this modified form of snap-on cover is also in evidence, together with a paper cup to which it is applied (Appellants' Ex. 4).

There are two factors of controlling importance with respect to the bead that cooperate to give the cover its snap-on characteristic. The first factor is the moistening and wax-impregnation of the paper stock prior to compression in the dies. The application states (Appellants' App. 28):

> "In order to condition the paper stock so that it is capable of being upset and molded around its marginal flange * * *, it is desirable to pre-treat it with moisture and a water-resisting compound such as wax."

This treatment prior to compression is of vital importance because, without it, the cover would *not* be a *snap-on* cover (Appellants' App. 12-13; 56Q-63Q; Appellants' Ex. 5). The second factor of importance in providing the snap-on characteristic is the enormous pressure that must be applied by the die operation in forming the inturned bead. The compressing dies (see also Appellants' Ex. 2) exert a pressure of 8,000 pounds per square inch, which would smash the container if attempt were made to apply such bead-forming pressures to the cover when mounted on a bottle (Appellants' App. 8, 17Q.-22Q.; 13, 64Q.-65Q.). Obviously, no such pressure could be applied to the cover when mounted on a paper cup.

Claims 3 and 7, expressly specify:

> "* * * the paper stock in said bead portion containing a *water-resisting compound* and being in the compress homogeneous seamless interfelted condition characteristic of having been compacted while in *moist condition*, * * *."

Claim 4 specifies:

> "* * * the paper stock in said bead portion containing *wax* and being in the compressed homogeneous seamless interfelted condition characteristic of having been compacted while in a *moist* and waxed state, * * *".

The other claims (1, 2 and 6) specify the article somewhat more broadly.

Without any advertising, these paper snap on covers embodying appellant Goodwin's invention have met with significant commercial success (Appellants' App. 7, 12Q.-14Q.; 8-11, 23Q.-45Q.). Summarizing the testimony, and as the District Court found (Appellants' App. 77-78) the appellants, without any advertising, manufactured for sale and use the following numbers of paper covers for the years indicated:

Year	Number of Covers
1933	874,527
1934	984,710
1935	10,986,999
1936	10,099,490
1937	16,385,373
1938	33,343,233
1939	41,783,992
1940	48,508,257
1941	83,479,775
1942 (1st 3 mos.)	26,847,450

All of those made during the years 1933 and 1934, and for the most part of 1935, were snap-on covers for use on glasses. Those covers were as shown in Fig. 4 of the Goodwin application and as exemplified by the cover constituting a part of Appellants' Exhibit No. 3, and also, during the latter part of the year 1935, some of the covers were for use on paper cups as shown in Fig. 3 of the Goodwin application. In 1936 some of the covers were made for glasses and the remainder for use on paper cups; these being respectively as shown in Figs. 4 and 3 of the Goodwin application and as exemplified by the cover constituting a part of Appellants' Exhibit No. 3. In 1937 some of the covers were of the same kind as those produced in 1936, and the remainder were of the notched type as shown in Fig. 10 of the Goodwin application and as exemplified by the cover constituting a part of Appellants' Exhibit No. 4. In 1938 practically all of the covers were for use on paper cups as shown in Fig. 10 of the Goodwin application and as exemplified by Appellants' Exhibit No. 4. During 1939 and from then on all of the covers were for use on paper cups as shown in Fig. 10 of the Goodwin application and as exemplified by Appellants' Exhibit No. 4. From the beginning of 1938 and thereafter all of the covers were of the notched type as shown in Fig. 10 of the Goodwin application. The figures given for the year 1942 are for the first three months of that year.

The *utility* of the paper snap-on cover described and claimed by the appellant Goodwin is thus abundantly demonstrated and beyond dispute.

The paper snap-on cover described and claimed by Goodwin is *new*. The prior art does not contain, and the District Court did not find, any anticipation thereof (Appellants' App. 75-78).

None of the prior patents discloses a paper snap-on cover containing wax, or a water-resisting compound, and compacted while in *moist* condition, as expressly required by claims 3, 4 and 7, and necessary to give the cover its snap-on characteristics.

The *Wright patent,* No. 1,603,057 discloses a cap made of waxed sheet paper in the form of a disc or cup intended to be laid on a bottle neck, softened by heat, and *molded in place on the bottle.* It is not a snap-on cover. It has no bead. Removal of the cap requires rupture or tearing of its flange or skirt. There is no suggestion of moistening the cap or of compacting it while moist. The patent states (p. 2, lines 109-124):

> "The bottlers will purchase these flat treated paper disks, and will be equipped with proper implements or machines for molding the flat disks, when softened by heat, directly on the bottle mouths to form the hood caps thereon, in such manner that said caps remain locked or secured on the bottle mouths by the stiff or rigid contracted flanges of the caps. The softened portions of the caps, quickly cool to atmospheric temperatures and quickly become set and rigid so that *removal of the cap preferably requires rupture or tearing of the flange thereof,* although this can be accomplished by the fingers without the use of special or other tools."

The Board of Appeals said of this patent (Appellants' App. 69):

> "The Wright patent is not particularly pertinent as the cap, although made of sheet paper, was intended to be softened by heat and molded in place."

The *Schmitt patent* No. 995,377, discloses a cap made of straw board, having a cylindrical flange (3) and an *outwardly* extending rim (4). It has no bead which is inturned from the flange, or which is compacted. The patent states (p. 1, lines 90-93) that the straw board is:

> "* * * paraffined or not, as the exigencies of the case may require."

The patent does not disclose any moistening of the cap material prior to formation of the cap. It does *not* state that the cap material is paraffined *prior* to formation of the cap. The patent *does* state (p. 2, lines 41-43, and lines 52-55):

> "The closure may be made entirely air-tight and sanitary by dipping the same in a bath of paraffin or other like material."
>
> "* * * the whole cap and mouth of the bottle may be paraffined to keep the contents from outside atmospheric influences."

Schmitt's cap is *not* a *snap-on* cover or lid (Appellants' App. 19, 97Q.-99Q.).

The *Blakeslee patent* No. 1,158,622 discloses a bottle cap made of liquid paper pulp. It has a flange portion (6) but *no bead* (Appellants' App. 18, 94Q.). It is not treated with wax or any other water-resisting material. The flange is inwardly and outwardly slitted, i.e. with indentures extending partially through the flange. Blakeslee's flange 6 is made of molded liquid paper pulp but is *not* compressed by the finishing dies; the patent states at the bottom of column 2 of page 1 and the top of page 3, column 1:

> "I finish the cap in dies which give the corking portion 7 the required finished shape, and also provide the incisions 10 in portion 6."

The dies merely provide the incisions in the flange or skirt (6); they do not compress any portion of the flange (Appellants' App. 18-19, 95Q.).

The *Flanigan patent,* No. 521,788, and the *Dingman patent* No. 853,775, disclose *metal* caps and contain no suggestion of making the caps of paper; neither discloses the type of bead described and claimed by appellants' application; the caps are made by bending the metal and *not* by *compacting* it to form a bead; the caps, being of metal do not have the sanitary properties of the cover described and claimed by appellants; and they require the use of a cork liner (C in Flanigan, 4 in Dingman) inside the metal caps whereas the appellants' covers do not (Appellants' App. 15, 67Q-70Q.).[1]

The *Ray patent* No. 1,153,518, discloses several species of bottle caps made of paper. None of them is made by treating the paper with either moisture, or with wax or other water-resisting material. None of them is compacted to form an inturned bead prior to application on the bottle. Ray proposes to compress the lower edge of the flange of his caps after the caps have been applied to the bottles. If one attempted to apply to any of Ray's caps (after it is mounted on the bottle), the pressure required to form appellants' snap-on bead, the bottle would break (Appellants' App. 16, 83Q.). Ray's caps are *not snap-on* covers but merely *slip-on* covers (Appellants' App. 22, 125XQ.).

Ray's species of cap shown in Figs. 1 and 2 has *no bead* at all *before* being applied to the bottle neck (Fig. 1). *After* the beadless cap has been laid over the neck of the bottle, the lower edge of the flange (4) is "upset"

> "* * * *i.e.* thickened by a sufficient compressing force,—to form a ring 5 on the bottom portion of the flange, around the bottle's neck and below and engaging the bead, such ring being much more rigid than the flange before such 'upsetting' process. It will be seen that by this process the cap is securely held in place." (Ray's spec. p. 1, lines 45-52.)

---

[1] The Schwenck patent No. 1,060,369, is even more remote than Flanigan and Dingman and what we have said as to the latter applies with equal or greater force to Schwenck. While Schwenck was cited at the trial, it was not pressed and the District Court did not even consider it or mention it in the findings.

Ray's patent states also (p. 1, lines 76-80):

> "A suitable adhesive may be applied to the flange, preferably on the outside, to hold the re-formed or 'upset' flange securely in such re-formed or 'upset' condition."

Ray's cap shown in Fig. 2 would spring *away* from the bottle if made as instructed by Ray (Appellants' App. 19, 100Q.). It will not act as a snap-on cap because (1) the paper has not been treated, and (2) one cannot apply enough pressure *after* the cap is on the bottle to make it solid (Appellants' App. 20, 109XQ.). After the cap has been formed on the bottle as shown in Fig. 2, it could be removed from the bottle but would be so distorted it would not go back on again in the same shape (Appellants' App. 20, 110XQ.-111XQ.). The bead (5) extends too far inwardly and even if it were made less inwardly extended the cap could not be taken off and put back unless it had been treated and had proper pressure applied in order to make it so hard that it would have the resiliency and spring of metal (Appellants' App. 21, 112XQ.-113XQ.). Ray's bead (5) is not upset in the same way as that of appellants' cover, in which the combination of treating and the upsetting and the pressure is what makes the lid a *snap-on* lid (Appellants' App. 21, 114XQ.-115XQ.).

Ray's species shown in Figs. 3 and 4 is provided, prior to application to the bottle (Fig. 3), with crimps or folds which extend inwardly from the lower edge of the flange. Ray's patent states (p. 1, lines 55-60):

> "These crimps conduce to a proper and uniform shaping of the ring 5 by the upsetting process. The crimps may be various disposed: In Fig. 3 they are horizontal, whereby the mouth or bottom of the cap may be distended to pass over the [bottle] bead [3] * * *."

Ray's patent does not state, with respect to this Fig. 3-4 species that the crimped portion of the cap will contract into snug engagement with the smaller portion of the bottle below the enlarged lip (3) of the bottle, but makes that statement in connection with a different species (shown in Figs.

7 and 8) hereinafter mentioned. Ray's Fig. 3-4 species is concisely summarized in his claim 3 as follows:

> "3. A bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending non-metallic crimped flange adapted to receive the bottle's neck and upset or thickened by compression around the bottle's neck and below the bead."

If the cap as shown in Fig. 3 were to be applied to the bottle, the inner crimped portion 6 would assume a vertically extending direction and would not appear as shown in Fig. 4 (Appellants' App. 16, 78Q.-81Q.).

As to Ray's species shown in Figs. 5 and 6, if the cap as shown in Fig. 5 were applied to the bottle, the cap would be so distorted as to be destroyed (Appellants' App. 16, 82Q.).

Ray's species of cap shown in Figs. 11 and 12 is provided with vertical folds. If that cap is applied to the bottle and the ring 5 compressed with such pressure as would *not* break the bottle, the removal of the cap from the bottle would cause the folds or pleats to unfold or be distorted so that it would not be a snap-on cover or cap (Appellants' App. 17, 85Q.-87Q.).

As to the species shown in Figs. 7 and 8 of the Ray patent, the specification states (p. 1, lines 63-74):

> "* * * in Fig. 7, they [the crimps or folds 6] are disposed helically or diagonally as shown. It will be seen that as thus arranged, the mouth of the cap may be distended to pass over the bottle bead, and that thereupon it will through its own elasticity contract to engage below the bead and will thus hold in place without 'upsetting'; and further, that this formation of the crimps conduces to the upsetting process whether effected by a force exerted from below, or from the side or in a rotary direction; * * *."

This form of cap is *not* a *snap-on* cover or cap either before or after it has been applied to the bottle; it is merely another form of slip on cover (Appellants' App. 17-18, 88Q.-93Q.).

Ray's species shown in Figs. 9 and 10 is merely a variant of the helically folded species shown in Figs. 7 and 8. The patent, after describing the helically folded species of Figs. 7 and 8, states (p. 1, lines 30-33; lines 74-76):

> "* * * Fig. 9 is a like view of a fourth modified form of my bottle closure; Fig. 10 is a similar view of the same applied to the bottle; * * *".
>
> "* * * in Fig. 9 the crimps are disposed helically in opposite directions so as to intersect each other."

It is therefore beyond dispute that the snap-on cover described and claimed by appellants is *new* and *useful*. The only issue is whether it involved invention.

STATUTES INVOLVED.

The pertinent parts of the statute giving jurisdiction are as follows (Rev. Stat. § 4915, 35 U. S. C. § 63 [as amended Aug. 5, 1939, c. 451, § 4, 53 Stat. 1212]):

> "Whenever a patent on application is refused by the Board of Appeals * * *, the applicant, unless appeal has been taken to the United States Court of Customs and Patent Appeals, and such appeal is pending or has been decided, in which case no action may be brought under this section, may have remedy by bill in equity, if filed within six months after such refusal or decision; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the commissioner to issue such patent on the applicant filing in the Patent Office a copy of the adjudication and otherwise complying with the requirements of law."

The pertinent parts of the statute having to do with patentability are as follows (Rev. Stat. § 4886, 35 U. S. C. § 31 [as amended May 23, 1930, 46 Stat. L. 376]):

> "Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, * * * not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtain a patent therefor."

STATEMENT OF POINTS.

Appellants contend that the District Court erred in that, having found the article described and claimed in appellants' application to be *new* and *useful,* it dismissed the complaint and denied a patent for lack of invention and particularly on the following grounds stated in the "Findings of Fact" (Appellants' App. 78):

> "10. It was not invention to modify the proportions of the cap shown in Figure 2 of the Ray patent by making the bead 5 of lesser inward extent so that it could without injury be passed over the lip 3 of the bottle. Such a modification of the proportions would be suggested by the Flanigan and Dingman patents.
>
> "11. It was not invention to modify the bead 6, shown in Figure 4 of the Ray patent, by making it of compacted, homogeneous, interfelted form, instead of crimped form, in view of the disclosure made in Figure 2 of the same patent.
>
> "12. It was not invention to provide slits in the bead of the Ray patent in view of the disclosure of slits in the Flanigan, Dingman, and Blakeslee patents.
>
> "13. It was not invention to impregnate the paper of which the Ray closure is made with water-resisting wax compound in view of the Schmitt and Wright patents.
>
> "14. Nothing recited in the claims set forth in the Complaint amounts to an invention over the prior art.
>
> "15. None of the claims set forth in the Complaint is patentable."

Appellants further contend that the District Court erred in concluding, as matters of law, that appellants are not entitled to the issuance of a patent containing any of claims 1, 2, 3, 4, 6 and 7 of the application No. 116,705 of appellant Carl W. Goodwin, and that the complaint should be dismissed.

SUMMARY OF ARGUMENT.

(1) The prior art does not teach or suggest the combination defined in appellants' claims, particularly claims 3, 4 and 7, and, the combination being new, the claims should be held to be patentable.

(2) The Flanigan and Dingman patents, which relate only to *metal* caps, do not suggest that the *paper* bead 5, shown in Fig. 2 of the Ray patent should be made of lesser inward extent so that it could be without injury passed over the lip 3 of the bottle, because:

> (a) Neither of the Flanigan and Dingman patents teaches or even suggests that the metallic cap disclosed could be made of paper and still function as a snap-on cap or cover.
>
> (b) The Ray patent teaches that a bead 5 may be formed on a paper cap by compressing the flange of the cap after it is placed on the bottle whereas the Flanigan and Dingman patents teach that the cap should be made of metal and formed, by bending to final shape before the cap is mounted on the bottle, and do not teach any compacting of the cap material either before or after the cap is applied to the bottle.

(3) The cap shown in Fig. 2 of the Ray patent would not be a snap-on cover even if its bead 5 were made of lesser inward extent so as to permit removal of the cap, without injury, from the bottle, because the bead is not pretreated and not sufficiently compacted.

(4) The cap shown in Fig. 4 of the Ray patent would not be a snap-on cover even if its crimped or folded portion 6 were replaced by the bead 5 shown in Fig. 2, because Fig. 2 does not disclose a snap-on cover (see par. 3, immediately above).

(5) If the bead or lower part of the flange of any of the caps of the Ray patent were provided with slits as shown in the Flanigan or Dingman, or Blakeslee patents, the cap would still not constitute a snap-on cap or cover.

(6) Neither of the Schmitt and Wright patents teaches or even suggests that the cap material of the Ray patent could be compacted in a moist and waxed condition to provide the bead required to produce a snap-on cover.

(7) Appellant Goodwin made a patentable invention in conceiving and providing a snap-on cover made of paper that has the snap-on characteristics of the prior art metal caps. Not a single one of the patents discloses, teaches or suggests such a cover made of paper.

(8) The claims define a new combination, which produces a new result, and are therefore patentable.

ARGUMENT.

Appellants' snap-on cover, with or without the slits provided in the second form, involves the following elements or features in combination and which are essential to its snap-on characteristic or operation:

> (A) a *sheeted paper* having a marginal *flange* of internal diameter to engage over the mouth of the container,
>
> (B) said flange having a thickened *bead* portion on its *inner* face at its free edge spaced from the inner face of the cover for engagement with the smaller diameter portion of the container, said bead portion containing a water-resisting compound (wax) and *being in*

> *the compressed homogeneous seamless interfelted condition characteristic of having been compacted while in the moist (and waxed) condition,* and
>
> (C) said bead portion having an internal diameter so little less proportionally than the internal diameter of said flange adjacent thereto that said cover may be snapped on and off said receptacle without injuring said bead.

All three of these limitations or features mutually contribute to impart the snap-on and snap-off characteristic to the cover. All three are *expressly* included in claims 3, 4 and 7. Appellant Goodwin was the first to conceive and to provide such a cover.

By failure to find to the contrary, the District Court found, in effect, that appellant Goodwin provided and is claiming a new combination of elements, combined in a new way so as to produce an improved result. The District Court failing to find an anticipation of appellants' new and highly useful article among the prior art patents, resorted (Appellants' App. 78) to findings that one or more of the claimed elements will be found in one patent, another or others in another patent or other patents, another or others in additional patents, etc. But even if each of the elements of appellants' article were individually old, still the claimed combination is new and would be patentable.

In *Burgess Battery Co.* v. *Coe, Commissioner of Patents,* 34 F. Supp. 377, 378, Justice Morris said:

> "If making use of known constructions in such combination and arrangement as produce new and useful results is not to be considered as invention, then it is not to be thought that there will be such continued effort and experimentation as was sought to be encouraged by the provisions of the Constitution and patent laws of our country."

In sustaining the patent in *The Williams Manufacturing Company* v. *United Shoe Machinery Corporation,* 62 Sup.

Ct. 1179, No. 332, decided May 25, 1942, the Supreme Court, speaking through Mr. Justice Roberts, said:

> "These findings are *to the effect* that the new combinations, while they involve old mechanical constructions, combine these in a new way so as to produce an improved result. * * * The claim that the combinations are merely of old elements, which perform no new function and produce no new result, must be overruled."

The principal prior patent cited in the findings of the District Court (Appellants' App. 78) is the Ray patent. But the Ray patent falls far short of negativing the patentable novelty of appellants' claimed invention, as we have pointed out in the statement of case.

In Ray's Fig. 1-2 species, the cap, before being applied to the bottle, appears as in Fig. 1. It is not a snap-on cover at all but is merely slipped or laid over the bottle neck. After the cap is on the bottle, the lower edge of the flange (4) is compressed *on the bottle* to form a ring 5. All concede that the cap could not thereafter be removed from the bottle without injury. The District Court found in effect (Appellants' App. 78) that it would be necessary "to modify the proportions of the cap shown in Figure 2 of the Ray patent by making the bead 5 of lesser inward extent" in order "that it could *without injury* be passed over the lip 3 of the bottle". Lacking any suggestion in Ray's patent that this change should be made, or that there would be any advantage in doing so, the District Court found (Appellants' App. 78):

> "Such a modification of the proportions would be suggested by the Flanigan and Dingman patents."

But those two patents disclose or suggest nothing with respect to paper caps; they have to do wholly with metal caps. Metal is resilient or springy and there was no problem in making a snap-on cover of such material. Such a cap with its metallic bead could be readily removed without injury from a glass bottle although the dimensions of the metallic bead were widely varied. Furthermore, the metallic cap patents say nothing about compacting the bead either before or after application of the cap to the bottle, and teach nothing about a cap such as Ray's which is compacted *after* it is mounted on the bottle. The compacting force necessary to produce the bead described and claimed by appellants would break the bottle if, as in Ray, it were applied to the cap flange after the cap is mounted on the bottle.

Furthermore, even if the bead 5 of Ray's device were made of lesser inward extent, the article would not be a snap-on cover as described and claimed by appellants. We discuss this hereinafter.

We come now to the finding (Appellants' App. 78) that it was not invention to modify the bead 6, shown in Fig. 4 of the Ray patent, by making it of compacted, homogeneous, interfelted form, instead of crimped form, in view of the disclosure made in Fig. 2 of the same patent. If this finding means anything, it means merely that instead of making the cap as shown in Fig. 4, it may be made as shown in Fig. 2. That being so, further mention of Ray's Fig. 4 appears to be unnecessary in view of our discussion of Fig. 2. Suffice it to point out with respect to Ray's Fig. 4, that, as in the case of Fig. 2, the compacting is effected *after* the cap has been placed on the bottle. Ray's patent states (p. 1, lines 52-57):

> "The cap may be formed plain as shown in Fig. 1, or crimps or folds 6 as shown in other views. These crimps conduct to a proper and uniform shaping of the ring 5 by the upsetting process".

None of Ray's Figs. 1 to 4, both inclusive, teaches anything about compacting the bead *before* the cap is applied to the bottle. This is likewise true of the entire Ray patent.

As to slits provided in the *bead* of one of the forms of appellants' invention, the District Court found (Appellants' App. 78) that there would be no invention to provide slits in the bead of the Ray patent in view of the disclosure of slits in the Flanigan, Dingman and Blakeslee patents. The only one of these patents that has to do with paper caps, i.e. the Blakeslee patent, discloses only a flange and *no bead at all.* In the only form of appellants' cap that is slitted at all, there are no slits in the flange; it is the *bead* that is slitted. None of the other patents teaches anything about slitting any part of a *paper* cap.

Finally, we point to the fact that to make Ray's bead 5 of lesser inward extent and to provide it with slits would not produce the snap-on cover described and claimed by appellants. Ray, considered either alone or coupled with the Flanigan, Dingman and Blakeslee patents, fails to teach, or even suggest, that the paper should be compacted while in moist and waxed condition, and Ray, either alone or coupled with the other patents, fails to teach the necessary compacting. Appellants' Exhibit 5 was made in precisely the same manner and with the same die pressure as the caps of appellants' Exhibits 3 and 4 except that the paper had not been moistened and had not been waxed prior to compression. Exhibits 3 and 4 are snap-on covers; Exhibit 5 is *not* (Appellants' App. 12-13, 56Q.-63Q.). Lacking this essential pretreatment in Ray, alone or coupled with Flanigan, Dingman, and Blakeslee, the District Court found (Appellants' App. 78) that it was not invention to impregnate the paper of which the Ray closure is made with water-resisting wax compound in view of the Schmitt and Wright patents.

Wright contains no suggestion of compressing the paper while in moist condition. Wright contains no suggestion of providing a snap-on cover. On the contrary, Wright teaches the exact opposite. Wright's patent states (p. 2, lines 109-124; p. 3, line 120 to p. 4, line 2):

> "The bottlers will purchase these flat treated paper disks, and will be equipped with proper implements or machines for molding the flat disks, when softened by heat, directly on the bottle mouths to form the hood caps thereon, in such manner that said caps remain locked or secured on the bottle mouths by the stiff or rigid contracted flanges of the caps. The softened por-

> tions of the caps, quickly cool to atmospheric temperatures and quickly become set and rigid so that *removal of the cap preferably requires rupture or tearing of the flange thereof,* although this can be accomplished by the fingers without the use of special or other tools."
>
> "These skirted treated caps, are flared so that they can be nested to reduce the space required for packing, and also to facilitate the application thereof to bottle mouths. These flared skirted caps are softened by heat before or after they *are slipped onto the bottle mouths,* and while so softened, any suitable means is utilized to contract the securing impregnated portions of the cap skirts, *to fasten and secure the caps on the bottle mouths, by the cooling and setting thereof, as hereinbefore described in connection with the flat impregnated disks."*

Thus Wright teaches a cap which is produced by laying a flat paper disc (or slipping a cup-shaped paper disc) onto a bottle mouth, and then compressing the paper around the bottle neck so that the cover or cap cannot be removed except by rupturing or tearing the flange.

The Schmitt patent adds nothing to Wright of pertinence here. Schmitt states that his covers may be "paraffined or not, as the exigencies of the case may require" and that after the cover is on the bottle:

> "The closure may be made entirely air-tight and sanitary by dipping the same in a bath of paraffin or other like material."

Schmitt has no inturned bead at all, being in that respect also like Wright patent.

Ray teaches that whatever "upsetting" or compacting is to be accomplished should be effected while the cap or cover is on the bottle. *Wright* teaches molding of the cap on the bottle neck. *Schmitt* fails to teach any inturned bead at all; much less does he teach the required compression to form a bead. One cannot apply sufficient force to a paper cover, while on a bottle, to form the kind of a bead required of a snap-on cover (Appellants' App. 8, 17Q.-22Q.; 13, 64Q.-65Q.).

It is respectfully submitted that it required invention to provide a paper cap as described and claimed by appellants, having the snap-on characteristics of a metal. None of the prior art patents cited teaches or even suggests a combination of features required to produce such a cap. In *Consolidated Valve Co.* v. *Crosby Valve Co.,* 113 U. S. 157, 171, the Court said:

> "Likenesses in them [prior art devices], in physical structure, to the apparatus of Richardson, in important particulars, may be pointed out, but it is only as the anatomy of a corpse resembles that of the living being."

We think that the language there used is particularly apt here.

CONCLUSION.

The cover described and claimed by appellants is concededly new and useful and, we submit, involves invention. The judgment of the District Court dismissing the suit should be reversed and the Commissioner authorized to issue the patent to the appellant, American Seal-Kap Corporation of Delaware on the application of the appellant Goodwin.

Respectfully submitted,

Nathaniel L. Leek,
Attorney for Appellant.

H. Frank Wiegand,
Robert C. Watson,
815 15th St., N. W.,
Washington, D. C.,
Of Counsel.

APPENDIX

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APPENDIX

1 *Civil Action for Issuance of United States Letters Patent*

1. This action arises under Section 4915, Revised Statutes (Comp. Stats. 9460; U. S. C. Title 35, Section 63), as amended by Act of March 2, 1927. No appeal has been filed in the United States Court of Customs and Patent Appeals under Section 4911, Revised Statutes (U. S. C. Title 35, Section 59a).

2. On the 19th day of December, 1936, the plaintiff, Carl W. Goodwin, duly made application in writing in the United States Patent Office for grant of Letters Patent Patent entitled "Paper Article and Method of Forming It", which application was given Serial No. 116,705.

2 3. The plaintiff, American Seal-Kap Corporation of Delaware, is, by an assignment, in writing, executed December 17th, 1936, and recorded in the United States Patent Office on December 21st, 1936 in Liber C-169, at Page 222 of the Transfers of Patents, and by an assignment, in writing, executed on July 12th, 1937, and recorded in the United States Patent Office on November 15th, 1937 in Liber V-172, at page 313 of the Transfers of Patents, the sole owner of the entire right, title, and interest in said application for United States Letters Patent of Carl W. Goodwin for "Paper Article and Method of Forming It", filed December 19th, 1936, Serial No. 116,705, and the improvements disclosed and claimed therein.

4. The defendant finally and unjustly refused to allow the claims in said application of Carl W. Goodwin, Serial No. 116,705, which appear in Schedule A attached hereto and made a part hereof.

5. The Board of Appeals of the United States Patent Office in a decision rendered July 5th, 1940 unjustly affirmed the final refusal of the claims of said Carl W. Goodwin application Serial No. 116,705, as set forth in Schedule A.

Whereof, the plaintiffs pray that this Honorable Court adjudge that the applicant, Carl W. Goodwin, is entitled to receive a patent with the claims of Schedule A herein, or such other or modified claims as the Court may find patentable, and that this Court authorize the defendant to issue
such patent to the plaintiff "American Seal-Kap
3 Corporation of Delaware", as assignee of the plaintiff Carl W. Goodwin.

FRANCIS D. STEPHENS
Attorney for Plaintiffs
803 National Press Bldg.
Washington, D. C.

NATHANIEL L. LEEK
Of Counsel

4 Endorsed: Filed Jan 3 - 1941 Charles E. Stewart, Clerk.

Schedule A

Claims finally rejected—Application Serial No. 116,705

1. A snap on cover for a container having a larger external diameter at its mouth than immediately therebeneath, which cover comprises a sheeted paper member having a marginal flange of an internal diameter to engage over the mouth of said container, and having a thickened bead portion on the inner face of the free edge of said flange spaced from the inner face of said cover for engagement with said smaller diameter portion of said container, said bead portion being formed from the paper stock to a compacted homogeneous seamless uniform interfelted condition.

2. A snap on cover for a container having a larger external diameter at its mouth than immediately therebeneath, which cover comprises a sheeted paper having a marginal flange of an internal diameter to engage over the mouth of said container, said flange having a thickened bead portion on its inner face at its free edge spaced from

the inner face of said cover for engagement with said smaller diameter portion of said container, the paper stock in said bead portion being in compressed homogenous seamless interfelted condition and said bead portion having an internal diameter so little less proportinally than the internal diameter of said flange adjacent thereto that said cover may be snapped on and off said receptacle without injuring said bead.

3. A snap on cover for a container having a larger external diameter at its mouth than immediately therebeneath, which cover comprises a sheeted paper having a marginal flange of an internal diameter to engage over the mouth of said container, said flange having a thickened bead portion on its inner face at its free edge spaced from the inner face of said cover for engagement with said smaller diameter portion of said container, the paper stock in said bead portion containing a water-resisting compound and being in the compressed homogeneous seamless interfelted condition characteristic of having been compacted while in moist condition, and said bead portion having an internal diameter so little less proportionally than the internal diameter of said flange adjacent thereto that said cover may be snapped on and off said receptacle without injuring said bead.

4. A snap on cover for a container having a larger external diameter at its mouth than immediately therebeneath, which cover comprises a sheeted paper having a marginal flange of an internal diameter to engage over the mouth of said container, said flange having a thickened bead portion on its inner face at its free edge spaced from the inner face of said cover for engagement beneath the larger diameter portion of said container, the paper stock in said bead portion containing wax and being in the compressed homogeneous seamless interfelted condition characteristic of having been compacted while in a moist and waxed state, and said bead portion having an internal diameter so little less proportionally than the internal diameter of said flange ad-

jacent thereto that said cover may be snapped on or off said receptacle without injury to said bead.

6. A snap on cover for a container having a larger external diameter at its mouth than immediately therebeneath,
6 which cover comprises a sheet material member having a marginal flange of an internal diameter to engage over the mouth of said container, and having a thickened bead portion on the inner face of the free edge of said flange spaced from the inner face of said cover for engagement with said smaller diameter portion of said container, said bead portion being formed from a paper stock to a compacted homogeneous seamless uniform interfelted condition and being formed in continuous segments substantially contiguous to each other.

7. A snap on cover for a container having a larger external diameter at its mouth than immediately therebeneath, which cover comprises a sheeted paper having a marginal flange of an internal diameter to engage over the mouth of said container, said flange having a thickened bead portion on its inner face at its free edge spaced from the inner face of said cover for engagement with said smaller diameter portion of said container, the paper stock in said bead portion containing a water-resisting compound and being in the compressed homogeneous seamless interfelted condition characteristic of having been compacted while in moist condition, and said bead portion being formed in contiguous segments together having an internal diameter so little less proportionally than the internal diameter of said flange adjacent thereto that said cover may be snapped on and off said receptacle without injuring said bead, said flange between said bead and the flange root being continuous about its circumference.

* * * * * * * * * *

7 *Answer to the Complaint.*

To the Honorable the Justices of the District Court of the United States for the District of Columbia.

1, 2, 3. Defendant admits the allegations of paragraphs 1, 2 and 3.

4. He admits that he has finally refused to allow claims 1, 2, 3, 4, 6 and 7 of the application of Carl W. Goodwin, Serial No. 116,705, entitled "Paper Article and Method of Forming It". He denies that his refusal is unjust.

5. He admits that the Board of Appeals of the Patent Office, in decisions rendered on May 22 and July 5, 1940, affirmed the final refusal of the primary examiner to allow said claims of the said application of Carl W. Goodwin. He denies that the refusal to allow said claims is unjust or that plaintiffs are lawfully entitled to a patent containing
8 any of said claims since it is deemed that the said
claims are unpatentable in view of the following prior patents and for the reasons given in the statement of the examiner in answer to the appeal and the decisions of the Board of Appeals, copies of which will be furnished at the trial:

Flanigan,	521,788,	June 26, 1894,
Dingman,	853,775,	May 14, 1907,
Schmitt,	995,377,	June 13, 1911,
Schwenck,	1,060,369,	Apr. 29, 1913,
Ray,	1,153,518,	Sep. 14, 1915,
Blakeslee,	1,158,622,	Nov. 2, 1915,
Wright,	1,603,057,	Oct. 12, 1926.

Profert of copies of these patents is hereby made.

W. W. COCHRAN
Solicitor, U. S. Patent Office,
Attorney for Defendant.

January 17, 1941.

I hereby certify that a copy of this Answer was mailed to the attorney for plaintiff on January 17, 1941.

W. W. COCHRAN
Solicitor.

* * * * * * * * * *

48 And thereupon, Carl W. Goodwin, a witness produced on behalf of the plaintiffs, having been first duly sworn by the Clerk of the Court, was examined, and in answer to interrogatories, testified as follows:

Direct Examination

By Mr. Wiegand:

1Q. Mr. Goodwin, will you take a glance at this
49 certified copy in order to enable you to say whether
you did or did not file an application? If you will
look at the oath there. Is that your signature in the oath
in this document I show you? A. Yes.

Mr. Wiegand: I offer in evidence a certified copy of the Goodwin application, Serial Number 116,705.

The Court: Without objection it may be received as Plaintiff's Exhibit No. 1.

(The certified copy of the document above referred to was marked Plaintiff's Exhibit No. 1 and received in evidence.)

By Mr. Wiegand:

2Q. By the way, will you state your full name, age, residence, and occupation? A. Carl W. Goodwin, 17 Mali Drive, Plainfield, New Jersey. I am Vice-President in charge of manufacturing of the American Seal-Kap Corporation, situated at Long Island City, New York.

3Q. That is the American Seal-Kap Corporation that is the plaintiff in this case? A. Yes.

Mr. Wiegand: I believe, Mr. Cochran, you admit title in the American Seal-Kap Corporation?

Mr. Cochran: Yes.

By Mr. Wiegand:

4Q. Will you please tell us what your experience
50 has been with respect to the making of paper caps or
sealing devices? About how long have you been in
this business? A. I came with the present company in December 1923.

5Q. What was the company doing then? A. Manufacturing milk bottle caps.

6Q. Was it a snap-on cap, or some other kind? A. It was a press-on cap that was held to the bottle by a frictional grip.

7Q. Was anything applied to it after the cap was on the bottle, wax or something like that? A. No.

8Q. It just held on there? A. Yes.

9Q. That was not a snap-on cap? A. No, sir.

10Q. Did you have considerable experience with that type of cap? A. Yes.

11Q. With respect to the main form of the cap shown in your application, can you briefly tell us how this cap came about that I hand you now on a glass? A. May I refer to notes? I want dates.

12Q. I don't know that dates are important, but if there is no objection you may refer to them. A. In the early part of 1933 I received communications from a
51 representative on the West Coast saying there was a considerable amount of these glasses the dairies would like to use to put cottage cheese in them, and they wanted to know if we could produce a snap-on cover for the glasses.

The idea flashed in my mind that if we made a lid with a bead on the inside to snap on the outside of the bead on the glass, we would give them a cap that would snap on and off the glass and that would serve the purpose.

I produced one of the dies and made sample lids and sent to them. They sent us orders, and in 1933 we produced 874,527 lids to be used on glass tumblers.

13Q. That was the main form, that had no slits in the bead? A. Yes.

14Q. Proceed. A. In 1934 we shipped 984,710 lids, also without slits.

In 1935 we produced 10,986,999 lids.

15Q. Will you stop there just a moment. The figures you are giving now were all of the main form of advice, and had no slits? A. That is right.

16Q. Will you tell the Court how that thing came about. Did it come as a result of long experimentation, or was it
something that popped into your head? A. It popped
52 into my head, so far as the lid was concerned. Naturally, to make the die to produce the lid, it required
some little study.

17Q. I show you a photograph you gave me this morning. What does this photograph show? Does it have anything to do with what we are talking about? A. Yes. These are forming presses. The same type of machine is used in making the snap-on lid.

18Q. The same type of press? A. Yes.

19Q. And you use different dies in producing the device? A. Yes.

20Q. Can you tell what the order of pressure is in connection with the use of those machines to make the kind of bead we have here? A. The pressure is approximately 8,000 pounds per square inch.

21Q. While we are on that subject, suppose you applied pressure like that to one of the caps after it was on the bottle, what would happen to the bottle? A. The bottle would break.

22Q. And that would happen to any glass container, if you
applied that kind of pressure to a bottle or any glass
53 container, it would break the glass? A. Yes, it would.

Mr. Wiegand: I would like to offer this photograph in evidence as Plaintiff's Exhibit No. 2.

The Court: Without objection it will be received as Plaintiff's Exhibit No. 2.

(The photograph above referred to was marked Plaintiff's Exhibit No. 2 and received in evidence.)

By Mr. Wiegand:

23Q. I think you have given us the production figures through the year 1935? A. Yes.

24Q. Will you pick up there and give us the rest of those production figures? A. The production in 1935 not only included lids for glass tumblers, but lids for paper cups as well. In the latter part of 1934 we received a letter from the Vortex Cup Company of Chicago, asking if we could produce a lid to fit their paper drinking cups. We sent them samples of our lid, and as a result we received an order from them for 5 million lids. This order came with a letter from the Vortex Cup Company dated February 13, 1935. This naturally helped the production in 1935.

In 1936 we produced 10,099,490 lids, or a slight decline from the 1935 production.

In 1937 we produced 16,385,373 lids.

54 25Q. Were they all of the first or main form, or did they include the slitted type? A. In 1937 we changed over to the notched type in November, so there would be some of that year's production in the notched type, but very little.

In 1938 our production was 33,343,233 lids. By this time they were practically all used on paper cups, because the fad of a glass container was petering out so far as dairies were concerned.

In 1939 our production was 41,783,992 lids.

26Q. In the year 1938, the 33 million-and-some lids, were they of the modified form? A. They were all of the modified form.

27Q. From that date on they were all of the modified form? A. Yes.

28Q. Please proceed. A. In 1940 our production was 48,508,257 lids.

In 1941 our production was 83,479,775 lids.

In 1942, for the first 3-month period, what we have shipped and what our production will be the balance of this month, is 26,847,450 lids.

29Q. Do you have that letter you showed me this morning? A. Yes. (The witness handed a letter to counsel.)

55 30Q. This letter of March 17, 1942, which we are both looking at, came to the American Seal-Kap Corporation about the date it bears or shortly thereafter? A. Yes.

31Q. And it has your stamp at the bottom, "Received March 19"? A. Yes.

32Q. And it is signed on behalf of Universal Paper Products Company by R. L. Clevenger, Purchasing Agent? A. Yes.

Mr. Wiegand: I will show it to Mr. Cochran.

(The letter referred to was handed to Mr. Cochran by Mr. Wiegand.)

Mr. Wiegand: Mr. Cochran has no objection to my reading these two paragraphs of that letter into the record:

"We are working on a Government order which will require the use of what is known in our trade as snap on lids. They slip over the top of the cup and are so designed that they snap around the rim and thus hold in place.

"Do you make them and if not, do you know who does make them? In what standard sizes are they available? What would be the extra charge if we should need a special size?"

By Mr. Wiegand:

56 33Q. You received that letter? A. Yes.

34Q. You haven't answered it yet, have you? A. I have answered it.

35Q. You have answered it? A. Yes.

36Q. These caps you were talking about a moment ago, as to the quantities produced, you don't make the containers, the cups, do you? A. No.

37Q. You supply the caps to the cup trade? A. We sell them to the cup manufacturers.

Mr. Wiegand: I don't think I need offer this letter in evidence. It is quoted in the record.

By Mr. Wiegand:

38Q. In connection with these sales you enumerated for the years from 1933 up to date, how much did you spend for advertising in magazines or papers? A. We didn't advertise at all.

39Q. You didn't advertise at all? A. No, sir.

40Q. It just came about naturally, first you had this inquiry, then this idea popped in your head and you worked out the die, and then the paper cup trade came in? A. Yes.

57 41Q. And you did no advertising? A. No advertising.

42Q. The glass tumbler I handed you a moment ago with the main form of your device on it, that is representative or typical of the first form of device you furnished to the trade? A. Yes.

Mr. Wiegand: I would like to offer that as Plaintiff's Exhibit No. 3.

Mr. Cochran: No objection.

The Court: It will be received.

(The glass tumbler with lid above referred to was marked Plaintiff's Exhibit No. 3 and received in evidence.)

By Mr. Wiegand:

43Q. And you referred in your testimony to the slitted form of device used particularly for paper cups. Have you any of those here? A. Yes, a whole box of them.

44Q. Did the plaintiff company make this kind of lid I now show you? A. Yes.

45Q. For paper cups? A. Yes.

46Q. What was the purpose of providing those marginal slits? A. To make the lid easier to apply to a lightweight paper cup. Due to the variance in the cups it would be impossible to put a solid lid on the paper cup without damaging the cup. 58

47Q. Were the slits provided to protect the lid or to protect the cup? A. To protect the cup.

48Q. The lid is tougher than the cup? A. Yes.

49Q. So that the slitting was to protect the cup and not the cap? A. Yes.

50Q. This one (indicating) was recently made by you? A. It was made last week.

51Q. This is the kind you referred to when you said you began supplying them to the paper cup trade in 1937; prior to that you had made the ones without the notches in the periphery? A. That is right.

52Q. And after that you made them all with notches? A. Yes.

53Q. In regard to the form used on glass tumblers, did the trade continue using those? A. That petered out, and then we got to the point there was such a demand for caps for paper cups that we could not very well take care of
59 the orders for caps for glass containers, because they
were mostly small orders, whereas the orders for caps for paper cups were all large orders.

54Q. Will you demonstrate to the Court how this form of device with the slits works? A. (The witness demonstrated the form of cap referred to by applying it to and removing it from a paper cup.) In the soda fountain business these are used extensively. It is very important that the lid goes on very quickly. The old type one was hard to put on. This goes on very quickly and easily and it stays on.

55Q. This is the second type, which you started supplying the trade the latter part of 1937? A. Yes.

Mr. Wiegand: I would like to offer it in evidence as Plaintiff's Exhibit 4.

Mr. Cochran: No objection.

The Court: Without objection, it will be received as Plaintiff's Exhibit 4.

(The device above referred to was marked Plaintiff's Exhibit 4 and received in evidence.)

By Mr. Wiegand:

56Q. Have you anything here that will help you in explaining whether the preliminary step of moistening or waxing the paper stock is or is not of importance? A. Yes, I have some untreated caps.

60 57Q. Is this one which I hand you now? A. Yes.

58Q. Is that made in the same machines and with the same order of pressure and the same starting materials as the other, except for the moistening and waxing preliminary to formation? A. Yes.

59Q. Will you demonstrate to the Court whether that is or is not a real snap-on cover? A. (Demonstrating) It almost falls off.

60Q. You have the cup inverted? A. Yes.

61Q. Would anybody in the trade recognize that sort of thing as a snap-on lid or cover? A. They would not. As a matter of fact, it would be rejected.

62Q. So that the matter of moistening and waxing before formation is of importance? A. It is of vital importance.

63Q. It is of vital importance? A. Yes.

Mr. Wiegand: I would like to offer this untreated cap in evidence as Plaintiff's Exhibit 5, together with another form of the cups, for the convenience of the Court.

Mr. Cochran: No objection.

61 The Court: Without objection it will be received as Plaintiff's Exhibit No. 5.

(The device above referred to was marked Plaintiff's Exhibit 5 and received in evidence.)

By Mr. Wiegand:

64Q. I think you have already mentioned it, but what is the order of pressure you use in your machine to make this cap? A. 8,000 pounds per square inch.

65Q. And I believe you have told us what would happen to a milk bottle if you used that kind of pressure after the cap was on the bottle? A. The bottle would break.

Mr. Wiegand: I would like to offer in evidence, as showing what was before the Patent Office, this brown folder, as Plaintiff's Exhibit 6.

The Court: Without objection it will be received.

(The folder above referred to was marked Plaintiff's Exhibit 6 and received in evidence.)

Mr. Wiegand: I would like to offer in evidence also a certified copy of the application in connection with the Ray patent, No. 1,153,518. That is in a binder.

Mr. Cochran: No objection.

Mr. Wiegand: This is the application to which I referred
at some length in my opening statement. I offer it as
62 Plaintiff's Exhibit No. 7.

The Court: It may be received.

(The certified copy of the document above referred to was marked Plaintiff's Exhibit No. 7 and received in evidence.)

Mr. Wiegand: And if Mr. Cochran has no objection, I would like to offer, in order to explain what the Patent Office and Ray were talking about, Olsson patent No. 919,937, as Plaintiff's Exhibit No. 8; and Brewington patent No. 673,236, as Plaintiff's Exhibit No. 9. These were patents that were cited against Ray.

Mr. Cochran: No objection.

Mr. Wiegand: I understand also that it is the practice in this Court that patents are received in evidence without certification.

Mr. Cochran: No objection.

The Court: They may be received.

(The patents above referred to were marked Plaintiff's Exhibits 8 and 9, respectively, and received in evidence.)

Mr. Wiegand: Three of the patents that we have been talking about here—to Schwenck, Flanigan and Dingman—are in the binder that has been offered and received in evidence as Plaintiff's Exhibit No. 6. In order to shorten the
record, I will tell the witness that each describes a
63 metal cap. That is fully cited in the brief, Your
Honor. These, I may say, are metal caps in which are cork liners. They speak for themselves. These were the patents referred to by the Board as being snap-on covers.

By Mr. Wiegand:

66Q. Do your caps that we have in evidence, both the one with slits in the bead and the one without slits in the bead, have any snap-on action in snapping on and off the container? A. Yes.

67Q. In these three patents—to Schwenck, Flanigan and Dingman—do you find anything that discloses your type of bead at all? A. No.

68Q. There is nothing made of paper there at all, of course? A. No.

69Q. None of them have a compacted bead? ?A. No.

70Q. Will you explain as briefly as you can what you told me sometime ago as to the sanitary or other qualities of papers caps as distinguished from metal caps? A. The process of manufacturing caps, either paper or metal, would probably be pretty much along the same line. Paper, however, having been treated such as we treat it, has been
64 subjected to temperatures high enough that it is thoroughly sterilized. Metal is rolled out at the mills where there is no means of sterilization, and metal caps are much less sanitary, and so recognized by health authorities, than paper caps.

Mr. Wiegand: As to the Wright patent, I don't think I need question the witness about that at all. It was rather slighted by the Board.

By Mr. Wiegand:

71Q. I call your attention to the Ray patent, No. 1,153,518, particularly Figs. 1 and 2. What would happen if you tried to apply to the flange portion 4 of that Ray cap, after it is on the bottle, sufficient pressure to form the kind of bead or inwardly projecting portion that you have on your cap? A. The bottle would be broken.

72Q. On my statement that the Ray patent does not disclose any pre-treatment of the paper, either by waxing or moistening or both, what would happen if you compressed the flange 4 of the Ray cap to the form shown in Fig. 5, or attempted to do that? Would it form the kind of snap-on bead present in your caps? A. It would not even seal to the bottle.

73Q. It would not seal to the bottle? A. No, sir.

65 74Q. Why not? A. The paper, untreated, reverts to its original flat form. It will not be held into shape without the pre-treatment.

75Q. Suppose after we did what Ray says here, to compact or form member 5 with the cap on the bottle, and we thereafter—here I call your attention to lines 76 to about 80 on page 1 of the specification of the Ray patent, where it says:

"A suitable adhesive may be applied to the flange, preferably on the outside, to hold the reformed or 'upset' flange securely in such re-formed or 'upset' condition."

Suppose we did just what he says there, and then we have this thing on the bottle with such compression at 5 that we have been able to put on without breaking the bottle, and with that adhesive on, what would happen if you tried to remove the cap from the bottle in Fig. 2? A. The cap would either be distorted or broken to such an extent that it would not reseal to the bottle.

76Q. Would it be a snap-on cover? A. No.

77Q. Speaking generally, with respect to Ray's other forms of devices, is what you have just said generally 66 applicable to those other forms? A. Yes.

78Q. In Ray's Figs. 3 and 4, on my assertion that Fig. 3 shows that form of cap before it is applied to the bottle, what would happen if you would put that cap onto a bottle? A. The inner flanges 6 would be inverted.

79Q. To a vertically extending position? A. Yes.

80Q. Provided the material was resilient enough to do that? A. I think it would anyway.

81Q. And it would not appear as in Fig. 4? A. No, sir.

82Q. And in Fig. 5, if that cap as shown in Fig. 5 truly was the cap before being applied to the bottle, what would happen if you attempted to apply it to the bottle? A. It would be so distorted as to be destroyed.

83Q. In all these Ray devices, I believe you said that to apply the compacting force to form the bead as you have it, would break the bottle? A. Yes.

84Q. Does that apply to figures other than Fig. 1? A. Yes.

85Q. In Fig. 11 of Ray a form is shown with vertical folds
6. Suppose you have that over the bottle and have com-
pressed rings 5 with such pressure as you could with-
67 out breaking the bottle, after so applying it to the
bottle, what would happen when you removed it from
the bottle? A. The folds or pleats would unfold or be distorted.

86Q. Would it then snap on? A. No.

87Q. Would the same answer apply to Fig. 12? A. Yes.

88Q. I call your attention to Figs. 7 and 8 of the Ray patent. Do you find anything inconsistent in that showing between the left-hand and the right-hand side? Take the left-hand side of Figs. 7 and 8, showing crimps that are vertical on the flange; is that consistent with the showing of the part of the cap on the other side of the bottle? A. No.

Mr. Wiegand: If Your Honor please, I am leading him, but unless Mr. Cochran objects, I can shorten this.

By Mr. Wiegand:

89Q. This form in Figs. 7 and 8 has diagonal folds 6, and the specification says:
"...; and in Fig. 7, they (meaning the crimps or folds 6) are disposed helically or diagonally as shown. It will be seen that as thus arranged, the mouth of the cap may be distended to pass over the bottle bead, and that thereupon it will through its own elasticity contract to engage below
the bead and will thus hold in place without 'upset-
68 ting'; ..."

And I would like to read from Plaintiff's Exhibit 7, the certified copy of the application for the Ray patent, what is there said in Paper No. 7:

"As to claims 7 and 8 and the Olsson patent: As we have urged, and as the Examiner admits, Olsson does not show 'helically—disposed crimps'."

Are there helically-disposed crimps in Figs. 7 and 8 of the Ray patent? A. Yes.

90Q. Then it goes on:

"The peculiar function of crimps thus disposed is this: If the bottle cap, thus crimped, be twisted so as to cause the crimps to assume a direction parallel with the cap's axis (or nearly so) the diameter of the opening or mouth of the cap is thereby increased, so that the cap may be readily slipped over the neck bead of the bottle."

Does that describe any snap-on action, or does it not describe any snap-on action? A. It does not.

91Q. As I understand, that means with diagonal crimps or folds you then expand the mouth; and then would there be a snap-on action when the cap comes over the bottle bead? A. No.

69 92Q. In connection with the form of device shown in Ray's Figs. 7 and 8, let us assume we put that on the bottle in the manner pointed out by Ray in his application for the patent, and after we have it on there suppose we compact that portion 5 as disclosed in Ray's specification at page 1, lines 70 et seq., where he says:

". . .; and further, that this formation of the crimps conduces to the upsetting process whether effected by a force exerted from below, or from the side" and so forth.

Assuming whatever compacting is on the bottle, as he states, and you have those diagonal crimps, when we removed the cap as shown in Fig. 8 from the bottle, what would happen then? A. The skirt would be distorted.

93Q. And suppose we tried to put it back on the bottle, would it have a snap-on action at all? A. No, sir.

94Q. With respect to the Blakeslee patent, referring to your own device, the top as a disc and the inwardly projecting portion as the bead, is there any such bead in the Blakeslee device? A. No.

95Q. Blakeslee says at the bottom of column 2 of page 1 of his specification:

"I finish the cap in dies which give the corking portion 7 the required finished shape, and also provide the inci-
70 sions 10 in portion 6."

Suppose you did what Blakeslee instructs you to do, and in order to give the corking portion 7 the required finished shape you used a die for that purpose, could that die at the same time apply pressure to the ring portion 6 of Blakeslee's cap? A. It could not.

96Q. It could not? A. No, sir.

97Q. Turning to the Schmitt patent in this same binder of patents, and accepting my statement that that is made of straw-board and that you have a rather shallow depression 7 in the neck of the bottle, above which there is the tapering portion 6, suppose we applied that to the bottle, first in position 1, and then in intermediate position 2, and then in final position 3; would that be a snap-one action that is anywhere akin to what we have been talking about here, or would it not? Will you please explain that if you can? A. It would not be a snap-on lid.

98Q. In the position shown in Fig. 3 the outwardly extending bead 4 is shown flat against the bottle. In order to assume that position, what would the material have to be like? A. It would have to be pliable or plastic, and
71 would have to be formed over something outside the
cap itself.

99Q. Would that cap snap on to the shallow depression 7? A. No. The pressure would keep that coming straight. You would have to apply pressure on the outside to make it press down. (Demonstrating)

Mr. Wiegand: May the record show the witness was demonstrating by sliding his brief case across the flat arm of his seat.

By Mr. Wiegand:

100Q. Just to go back to the Ray patent for one more question:

In this Fig. 2 of Ray—and I take it the same is true of other forms—where you do whatever compressing of part 5 on the bottle, I think you mentioned that if that was done with the material he described it would spring away from the bottle? A. Yes.

101Q. Why doesn't that happen in your device? A. Because of the treatment and the pressure.

102Q. And you use metal dies both inside and outside? A. Yes.

103Q. You don't try to compress on the glass? A. No.

104Q. Is the inside die the same size as the bottle
72 or cup? A. It is smaller.

Mr. Wiegand: I think that is all I have, if Your Honor please. I have tried to shorten it all I could.

Cross Examination

By Mr. Cochran:

105XQ. I think you said when you received this inquiry about paper caps it popped into your head to have a snap-on cap. At the time that this idea came to you, you knew of metal caps of the snap-one type, didn't you. A. Yes, I had seen them.

106XQ. As to the use of wax or paraffin, you were not the first to use wax or paraffin on caps made of paper? A. No.

107XQ. You are not claiming to be the inventor of the idea of waxing? A. I am the inventor of the idea such as we treat our caps and lids.

108XQ. If you did not wax the paper of the lids, the paper would act something like a blotter and not hold completely? A. That is true.

109XQ. I wish you would refer to the Ray patent, Fig. 2 especially. Why will that cap not act as a snap-on cap?

A. First, because the patent does not call for treat-
73 ment of the paper; and second, because you can't
apply enough pressure after the cap is on the bottle to make it solid.

110XQ. Could you take that cap off and put it back on the bottle in the shape shown in Fig. 2? A. Could I take it off and put it back on again?

111XQ. Yes. A. You could take it off, but the bead would be so distorted it wouldn't go back on in the same shape.

112XQ. Does the bead extend too far inwardly? A. Yes.

113XQ. But if you made the bead less inwardly extended, it could be taken off and put back on? A. Not unless it was treated and had proper pressure applied in order to make it hard so that it would have the resiliency and spring you have in metal.

114XQ. You concede that this bead is upset in the Ray patent? A. Yes.

115XQ. But you say it is not upset the same way? A. The combination of the treating and the upsetting and the pressure is what constitutes the snap-on lid.

116XQ. You have stated what you think would happen to the cap in Fig. 2, and you have also testified as to what would happen if the cap shown in Fig. 3 were placed
74 on the bottle as shown in Fig. 4. Did you make experiments with these objects to determine that, or is that just your opinion? A. I have experimented with a cap of this type to a considerable extent.

117XQ. Did you make one like that shown in Fig. 3 and try to put it on a bottle as shown in Fig. 4? A. No.

118XQ. Isn't it a fact that the snap-on action in your cap is due to the elasticity of the bead portion? A. It is due to the springiness.

119XQ. Springiness and elasticity? A. Yes, but you wouldn't get that without the treatment and the pressure we apply, which we have demonstrated by the untreated sample.

120XQ. But you don't disagree with the statement on page 1, beginning at line 64 of the Ray patent:

> "It will be seen that as thus arranged, the mouth of the cap may be distended to pass over the bottle bead, and that thereupon it will through its own elasticity contract to engage below the bead and will thus hold in place without 'upsetting'; . . ."

Do you or do you not agree with that statement, as applied to Fig. 7, I mean? A. I do not agree with it.

121XQ. Do you not agree that that statement ap-
75 plies even to Fig. 7 of the Ray patent? A. It does
not apply to Fig. 7 unless that paper is treated, and
he doesn't say it is treated.

122XQ. Ray doesn't specify whether he treats it or not, as I understand? A. He does not.

By the Court:

123XQ. Ray mentions using compressing force in making the bead? A. Yes, but in all cases, Your Honor, it is implied that the pressure is to be applied on the bottle, and our experience from actual tests shows that it takes pressure of the order of 8,000 pounds per square inch to make the bead, and no glass would stand up under that pressure.

124XQ. He doesn't say you have to apply it on the bottle?

Mr. Wiegand: Would you like to have me direct some questions to him on that, Your Honor?

The Court: No, I will ask him the questions.

By the Court:

125XQ. Ray says:

"A bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending non-metallic flange adapted to receive the bottle's neck and upset or thickened
by compression around the bottle's neck and below
76 the bead."

I see it there, but at another place it just says: "thickened by a sufficient compressing force".

Your contention is that the Ray patent doesn't give the snap-on or snap-off effect?

A. It does not. If anything, it would be a slip-on cover.

Mr. Cochran: That is all.

Mr. Wiegand: That is all.

(Witness excused.)

* * * * * * * * * *

116705

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WRIGHT, BROWN, QUINBY & MAY
EXCHANGE BUILDING, 53 STATE ST.
BOSTON, MASS.

DEC-19-36 115151 E Check — 30.00

$30

DEC 19 1936

Petition

To the Commissioner of Patents:

Your Petitioner, CARL W. GOODWIN, a

citizen of the United States, and a resident of Plainfield,

in the County of Union, *and State of* New Jersey,

whose Post Office Address is: 1315 Murray Avenue, Plainfield, New Jersey,

*pray*s *that Letters Patent may be granted to* him *for the improvement in* PAPER ARTICLE AND METHOD OF FORMING IT

set forth in the annexed specification; and he *hereby appoints* ~~*Charles F. Brown, Marcus B. May*~~, *Arthur H. Brown, Arthur B. Marsh, Oliver C. Morse, Nathaniel P. Wharton and Herbert A. Baker, doing business under the firm name of* ***WRIGHT, BROWN, QUINBY & MAY****, at No. 53 State Street, Boston, Massachusetts (Registration No. 618),* his *Attorneys with full power of substitution and revocation, to prosecute this application, and to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.*

Inventor's signature
First name in full
Carl W Goodwin

Specification

To all whom it may concern:

Be it known, *That*, I, CARL W. GOODWIN, a

citizen of the United States, residing at Plainfield, *in the County of* Union, *and State of* New Jersey

have invented new and useful improvements in PAPER ARTICLE AND METHOD OF FORMING IT

of which the following is a specification: 116705 1/2

83 This invention relates to paper articles, more particularly covers adapted to cooperate with lipped receptacles and the like, and has for an object to produce such a cover which may be snapped on or off, and, which, when on, will hold the contents of the receptacle securely even when the receptacle is inverted. To this end the cover is formed up with a marginal flange engageable about the top of the receptacle and provided with an inwardly extending marginal bead formed of paper stock molded into form and without seams or folds. By molding this bead rather than rolling or folding the paper into bead shape, it is made into an integral structure without separable laminations and is thus much stronger and better able to withstand distorting forces than if such laminations were present. The capacity of the cap to withstand severe service is thus very greatly increased.

For a more complete understanding of this invention, reference may be had to the accompanying drawings in which

Figure 1 is a central vertical section through the cap-forming portions of the forming dies.

Figure 2 is a horizontal section on line 2-2 of Figure 1.

Figure 3 is a fragmentary view partly broken away showing the cap applied to the top of a paper cup.

Figure 4 is a view similar to Figure 3, but showing the cap applied to a tumbler or glass.

Figures 5 to 8 inclusive are detail sections showing successive stages of the cap-forming operation.

84 Figure 9 is a plan view of a blank from which a somewhat modified form of cap may be made.

Figure 10 is a view somewhat similar to Figure 3, but showing a cap made from the blank of Figure 9.

This application is a continuation in part of my application Serial No. 677,483, filed June 24, 1933, for Paper Article and Method and Mechanism for Forming It.

Referring first to Figures 1, 2 and 3, at 1 and 2 are indicated cooperating dies. The lower die 2 comprises a socket member 3 in which is positioned a yielding base member 4 which may be depressed against the pressure of a spring 5 to the base of the socket with its upper face 6 substantially flush with the lower edge of a counterbored portion 7 at the upper end of the socket 3. At 8 is shown a plate member having an opening 9 therein flared at 10, this plate member being movable to present in succession disks of paper to be formed between the dies 1 and 2. The disk of paper when presented lies within the flaring portion 10 of this plate 8 and is forced downwardly therethrough by the plunger 20 of the die 1 and onto the base 6. This plunger 20 is provided with segmental portions 21 and 22, which as shown best in Figure 2, are arranged in two sets having mating inclined faces 23. The segmental pieces 21 are shown as joined in pairs diametrically across the die 1 by means of springs 25 which tend to hold these members in collapsed position in which condition also the portions 22 are still further retracted in the position shown in Figure 2. The portions 22, however, have inclined inner upper faces 26 with which cooperate a frusto-conical portion 27 of an expanding block 28, so that as the block 28 is pushed downwardly relative to the members 21 and 22, both these sets of members are forced outwardly, the members 22 being moved out relative to the members 21 until their outer faces form with the outer faces of the portion 21 a continuous circumference. Both the members 21 and 22 are provided with segmental portions of an annular rib 30, which, when these segments are expanded, form together a continuous rib about the lower end of the plunger 20. The first portion of the motion of the plunger 20 into the socket 3, carrying the central portion of the paper disk therewith, causes the marginal portion of the paper disk to be bent upwardly as shown at 40 in Figure 5, the central portion 41 of the disk being seated upon the base 6, the segmental portions 21 and 22 being then in expanded condition so that the flange 40 is engaged between the socket wall and the rib 30 adjacent to the face of the disk so as

to support opposite faces of the flange 40 adjacent to the top surface of the disk. Above the rib 30 the flange 40 is supported only as its outer face, the outer wall of the plunger 20 above the rib 30 being spaced inwardly from the inside face of the flange 40. When the plunger has entered the socket sufficiently far to seat the base member 4 against the base of the socket 3 into the position
86 shown in Figure 6, the outer portion of the disk 40
just inwardly of the flange is seated on the base of the counterbored portion 7, and an annular forming member 42 provided with a concave lower face 43 has engaged the upper edge of the flange 40 and has upset and pressed it down endwise somewhat into the space 44 above the rib 30 and between the segments 21 and 22 and the wall of the socket 3, this space being substantially wider than the thickness of the paper stock, as is shown in Figures 5 and 6.

Engagement of the member 42 on the upper edge flange produces an upsettng action on the material of this flange, which is shown in successive stages in Figures 6 and 7. This upsetting action causes a re-arrangement of the fibers of the paper resulting in a thickening of the sheet material without substantial folding or rolling of the sheet material on itself so that when the member 42 is in its extreme downward position, as shown in Figure 8, this fibrous stock has been upset and compacted on itself to form a homogeneous, highly compacted felted fibrous mass without seam or fold and molded into a bead configuration projecting inwardly from the outer wall of the flange and spaced from that portion of the article inwardly of the flange. On raising the die member 1 from the die member 2, the die parts are returned to their original position and the formed cap is removed from the socket 3, while the springs 25 act to retract the segmental portions, thus freeing the formed cap from the die member 1.

87 The die mechanism is not claimed herein but forms subject matter of a co-pending application Serial No. 53,897 for Molding Mechanism, filed December 11, 1935.

In order to condition the paper stock so that it is capable of being upset and molded around its marginal flange and likewise to render it water-resistant or water-proof, it is desirable to pre-treat it with moisture and a water-resisting compound such as wax. The treatment acts to temper the fibers and facilitates the molding operation and the compacting of the fibers together. Preferably along with the paraffin is included a small percentage of a hardening wax such as carnauba or montan wax.

Such a cap when formed may be snapped onto the top of a paper cup, such as shown in Figure 3, provided with a marginal bead 50 at its upper edge, the molded bead portion 45 of the cap being snapped under this bead on the cup. Likewise such a cap may be snapped over the upper edge portion of a glass or tumbler, as shown in Figure 4, which may likewise be formed with a thickened bead portion 51 about its upper edge, or the cap may be engaged with the upper edge of a cup which flares slightly at its upper end rather than having any pronounced bead thereat, both flaring and a slight bead being shown in Figure 4. It will be noted from an inspection of Figures 3 and 4, that the bead 45 and its inward extension is small relative to the diameter of the cap. Thus the diameter of the cap in the clear between opposed portions of the inner edge of the bead is less than that above the bead where it engages over the top of the container by such a small proportion of the total diameter that the bead may be stretched the very small amount necessary to snap the cover on or off
88 the container, the top of which is of slightly greater diameter than the interior of the bead and is of reduced diameter below its top, without opening up the structure of the bead or otherwise damaging it. If desired the cap may be sealed to the receptacle as by any suitable means such as a strip of cellulose compound shrunk thereover in accordance with well known practice.

By forming the marginal bead on the cap flange of highly compacted paper stock without fold or seam, it is capable of withstanding very severe service without being damaged and thus a very secure sealing of the contents of the cup or tumbler may be readily effected.

In Figures 9 and 10 a modified construction has been illustrated. Where the bead is formed continuously around the entire circumference of the cap, the construction is quite rigid and when the container tops and caps are subject to much relative size variation, if these caps are made small enough to have the required holding power on the smallest tops, it may be found very difficult to force them onto the larger container tops without undue distortion or even collapse when the containers are made of very light and thin material as some types of paper drinking cups. This difficulty may be avoided by making the bead in separate segments. To this end the circular blanks 52 of Figure 9 from which the caps are to be made may be provided with V-shaped notches about their peripheries as shown at 53, forming continuous segments 54 therebetween. Six of these segments are shown, though the number may be varied, depending, for example, on the size of the caps and the thickness of stock used. The apex of each notch 53 is preferably positioned at about the inner edge of the stock, which in the molding operation is formed into the bead, so that the flange between the bead and the flange root where it joins the main body of the cap is continuous throughout its circumference. The molding operation brings the ends of the bead segments substantially together or contiguous, as shown at 55 in Figure 10, but yet permits the bead segments to yield so as to take care of a larger variation in sizes of both container tops and caps than could be done with a continuous bead, while still providing an effective seal. Caps so made are more flexible and easier to apply than those made with continuous beads.

From the foregoing description of the cap and its method of formation and mechanism for so forming it, it should be evident that various modifications and changes can be made without departing from the spirit or scope of this invention as defined by the appended claims.

* * * * * * * * * *

215/38

Paper # 2

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Print of drawing as originally filed.

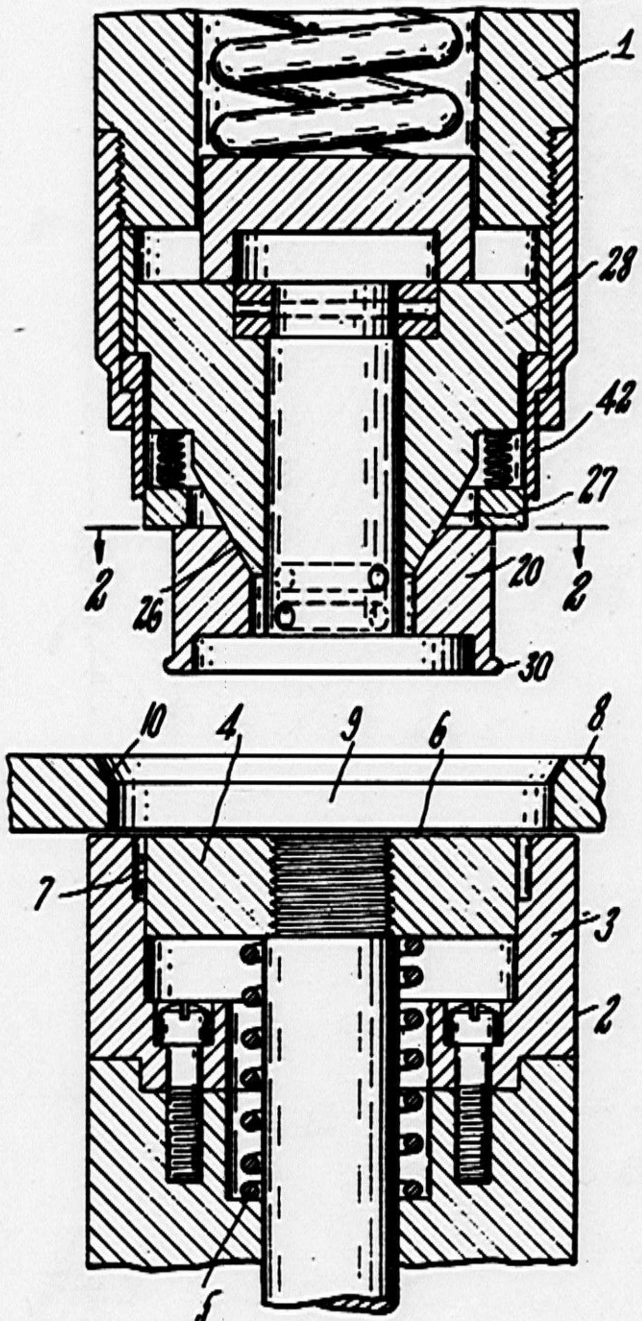


Fig. 1.

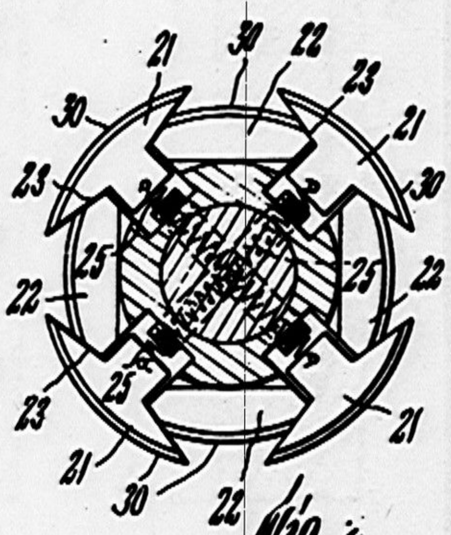


Fig. 2.

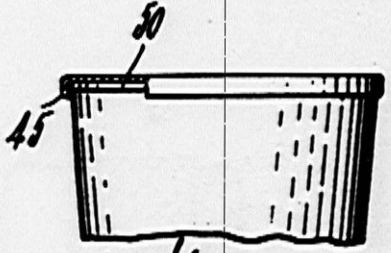
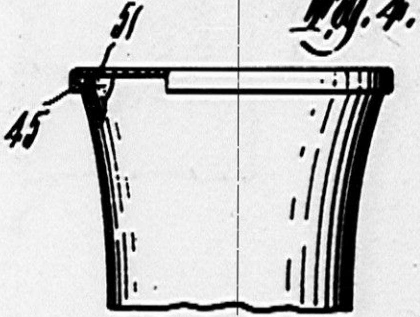


Fig. 3.

Fig. 4.



Inventor
Carl W. Goodwin
by Wright Brown Quinby & May
Attys.

116 /3

116705 2

Print of drawing as originally filed.

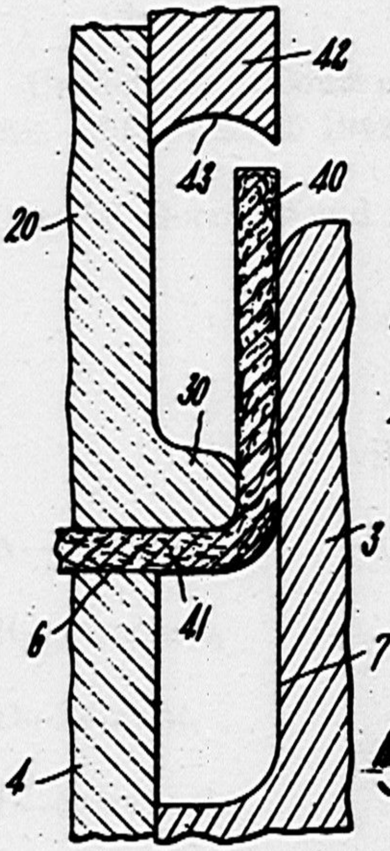


Fig. 5.

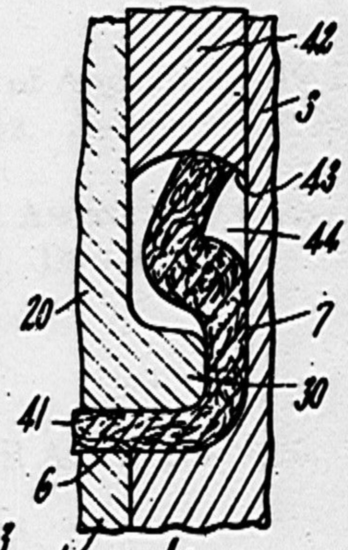


Fig. 6.

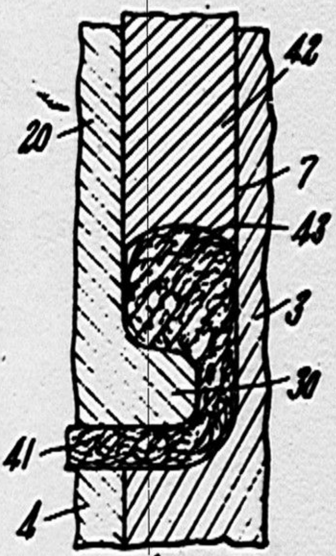


Fig. 7.

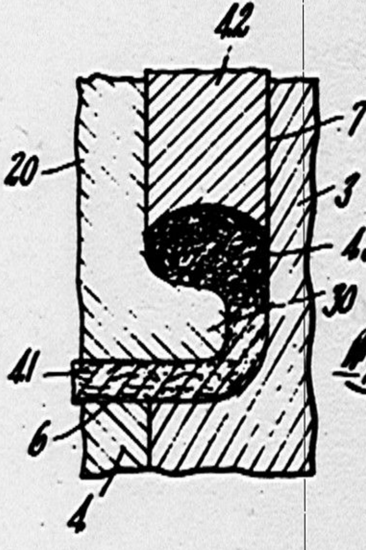


Fig. 8.

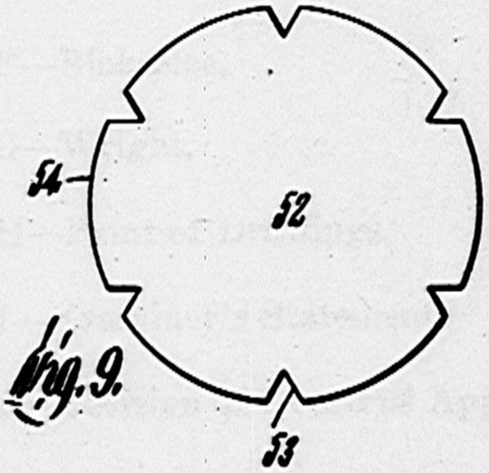


Fig. 9.

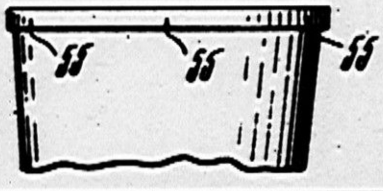


Fig. 10.

Inventor
Carl W. Goodwine
by Wright-Brown-Quinby & May
Attys.

116705 14

DEFENDANT'S EXHIBIT 1.

207 Endorsed: Filed Jun 12 1942 Charles E. Stewart, Clerk.

United States Court of Appeals for the District of Columbia. Filed Jun 25 1942. Joseph W. Stewart, Clerk.

CARL W. GOODWIN and AMERICAN SEAL-KAP CORPORATION OF DELAWARE,

v.

COE.

Civil Action No. 9615.

A—Flanigan,	521,788
B—Dingman,	853,775
C—Schmitt,	995,377
D—Schwenck,	1,060,369
E—Ray,	1,153,518
F—Blakeslee,	1,158,622
G—Wright,	1,603,057
H—Print of Drawings,	
I—Examiner's Statement,	
J—Decision of Board of Appeals.	
K—Decision of Board of Appeals on Request for Reconsideration.	

(No Model.)

R. FLANIGAN.

CLOSURE FOR BOTTLES.

No. 521,788. Patented June 26, 1894.

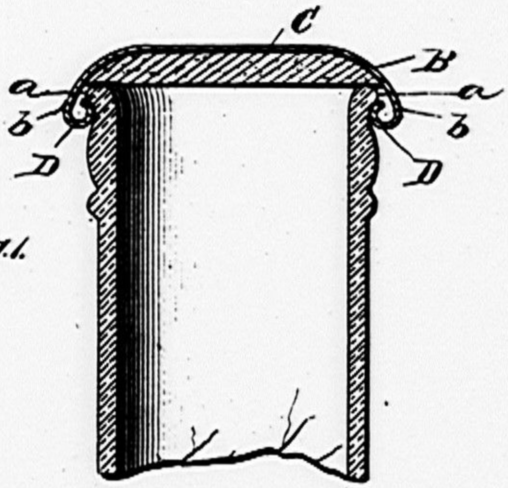


Fig.1.

Fig.2.

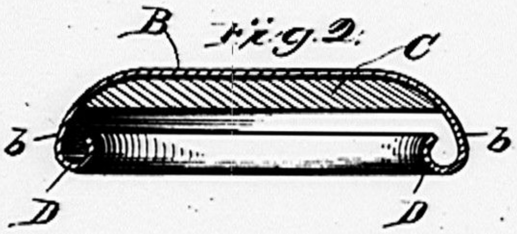


Fig.3.

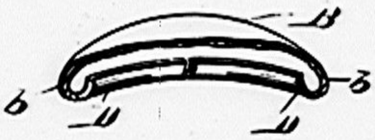


Fig.4.

Witnesses

J. M. Fowler Jr.

Thomas Durant

Inventor

Robert Flanigan

By Church & Church

his Attorneys

UNITED STATES PATENT OFFICE.

ROBERT FLANIGAN, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF
TO J. S. DETRICK, OF SAME PLACE.

CLOSURE FOR BOTTLES.

SPECIFICATION forming part of Letters Patent No. 521,788, dated June 26, 1894.

Application filed December 14, 1893. Serial No. 493,648. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FLANIGAN, of the city of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Closures for Bottles; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to that class of closures adapted more especially for use on bottled beer and beverages, in the consuming of which the closure is usually destroyed or removed and lost, while the bottle is preserved, and hence it becomes highly desirable to provide a very simple and cheap closure, but one which will at the same time form a secure and tight fastening.

The invention consists in certain novel details of construction and combinations and arrangements of parts all as will be now described and pointed out specifically in the appended claims.

It has been heretofore proposed to employ a bottle having a suitable lip-flange or annular enlargement around the mouth with a cap adapted to fit over the mouth of said bottle and around the enlargement, the downwardly extending portion of the cap being crimped to form inwardly extending projections for co-operation with the enlargement to hold the cap in place, and a disk of sealing material, such as cork being placed within the cap to form an air tight closure. Such devices in actual use have been found inefficient, the difficulties being due to the fact that there is little, if any latitude for inequalities in the conformation of the bottle mouth and enlargement, thus making it impossible to fit the closure accurately, especially as it is found to be practically impossible to obtain bottles which are strictly accurate and uniform in their conformation.

One of the main objects of my invention is to overcome this difficulty and further, to provide for the use of the closure upon bottles differing slightly in size.

Referring to the accompanying drawings: Figure 1 is a vertical section through a bottle and closure constructed in accordance with my invention. Fig. 2 is an enlarged detail section through the closure itself. Fig. 3 is a perspective view of a closure and Fig. 4 a detail perspective showing the beaded flange slitted to provide for a wider range of elasticity than can be secured with the construction illustrated in Figs. 1 and 2.

Like letters of reference in the several figures indicate the same parts.

The bottle A in the accompanying drawings, it is obvious may be of any of the ordinary or of any preferred form, it only being essential that it be provided with a lip flange or enlargement *a* on the outside near the mouth, or that it be so conformed at this point as to afford an under cut bearing surface beneath which the closure may grip.

A cap B preferably struck up from sheet metal is provided for fitting over the mouth of the bottle, and within it, there is located a sealing diaphragm or washer C of cork or similar somewhat elastic substance, which will form a water and air tight closure by being pressed against the mouth of the bottle. The downwardly flanged portion of the cap lettered *b* is at the lower edge, beaded, the flange being turned inward and then outward to a point in proximity to but not touching the inner surface of the part *b*. The effect of this is to form an inwardly turned opened bead D, which constitutes a gripping ledge adapted to co-operate with the undercut of the lip flange on the bottle and retain the cap in position. By beading the downwardly extending portion or flange of the cap, it will be seen that I am enabled to secure a somewhat elastic bearing against the enlargement on the bottle, and hence it is not absolutely necessary to slit or break the continuity of the flange or bead at all, although it is desirable in some instances to do so, as illustrated in Fig. 3. The rounded inner surface of the bead co-operates with the rounded under cut of the projection on the bottle and forms a long drawing surface so to speak, that is to say, as the smallest diameter of the bead passes the largest diameter of the projection on the bottle, the elasticity of the bead will cause the same to contract and in doing so, will draw the body of the cap down and the tendency at all times will be to hold the cap tightly in place. Where it is desirable to have a greater range of lateral elasticity, the body of the flange as well as the bead may be cut vertically, as illustrated in Fig. 3, or the bead alone may be slitted or cut as illustrated in Fig. 4. The latter form gives a somewhat greater range of vertical elasticity and enables the device to conform more readily to inequalities in the vertical thickness of the lip-flange or of the sealing disk located within the cap as well as a wider range of elasticity in a lateral direction. The solid downwardly extending flange affords a firm support and limits the movement of the beaded portion so as to prevent any undue strain or setting of the metal constituting the bead.

The whole device it will be seen is extremely simple and use demonstrates the fact that it will form an exceedingly strong closure, is not liable to leak or be knocked off by accident or otherwise in use.

Having thus described my invention, what I claim as new is—

1. The combination with the bottle having the undercut near its mouth, of the integral metallic cap having the downwardly extending flange fitting around the bottle mouth, and turned back upon itself at its lower edge to form a hollow bead, rounded on its inner surface, cooperating with the undercut in the bottle, and the sealing disk within the cap; substantially as described.

2. The combination with the bottle having the under-cut near its mouth of the integral cap having the downwardly extending flange, fitting around the bottle mouth with the inwardly beaded lower edge cooperating with the under-cut on the bottle, the upwardly extending edge of said beaded portion being turned out, into proximity to, but not in contact with the inner surface of the body of the flange, and the sealing disk in said cap; substantially as described.

3. A closure for bottles consisting of the integral cap having the downwardly extending flange formed with a hollow bead at its lower edge, the beaded portion formed with a rounded inner surface and being slitted vertically to provide for a greater range of elasticity and the sealing disk within said cap; substantially as described.

4. A closure for bottles consisting of the integral, metallic cap having the downwardly extending flange with the inwardly beaded lower edge, the upwardly extending edge of said beaded portion being turned out into proximity to, but not in contact with, the surface of the body of the flange; substantially as described.

ROBERT FLANIGAN.

Witnesses:

THOMAS DURANT,
ALEX. S. STEWART.

No. 853,775. PATENTED MAY 14, 1907.

F. DINGMAN.

BOTTLE CLOSURE.

APPLICATION FILED SEPT. 22, 1906.

Fig. 1.

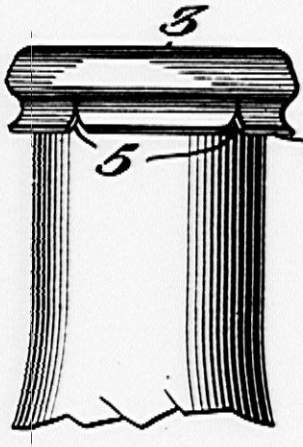


Fig. 2.

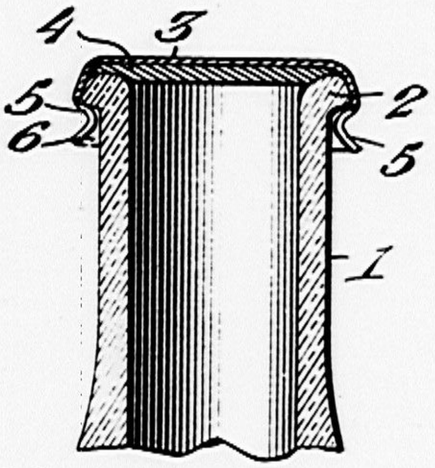


Fig. 3.

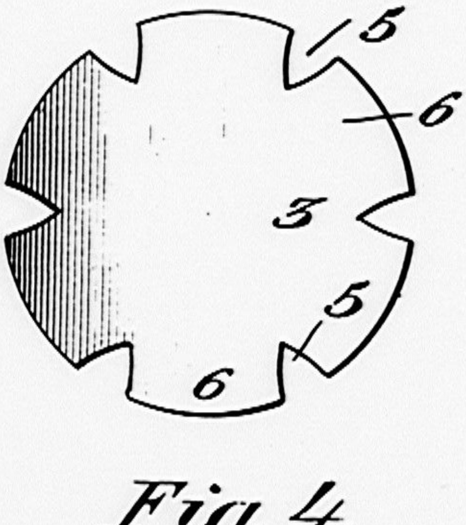
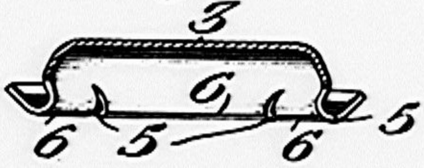


Fig. 4.



Witnesses
Phil. E. Barnes
F. S. Elmore

Inventor
Frank Dingman.

By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

FRANK DINGMAN, OF BERWYN, MARYLAND.

BOTTLE-CLOSURE.

No. 853,775. **Specification of Letters Patent.** **Patented May 14, 1907.**

Application filed September 22, 1906. Serial No. 335,787.

To all whom it may concern:

Be it known that I, Frank Dingman, a citizen of the United States, residing at Berwyn, in the county of Prince George and State of Maryland, have invented new and useful Improvements in Bottle-Closures, of which the following is a specification.

This invention relates to bottle closures of the type embodying a metal cap designed to fit over the mouth of the bottle, and has for its objects to produce a comparatively simple, inexpensive device of this character which may be conveniently applied for use, one whereby the bottle will be effectually sealed, and one which may be readily removed in the operation of opening the bottle.

With these and other objects in view, the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings: Figure 1 is an elevation of a portion of a bottle equipped with a closure embodying the invention. Fig. 2 is a vertical, longitudinal section taken centrally through the bottle neck. Fig. 3 is a plan view of the cap in blank. Fig. 4 is a detail, sectional view taken centrally through the cap and showing the same prior to bending the flanges to engaging position.

Referring to the drawings, 1 designates a bottle neck having a flange or head 2, there being applied to the mouth of the bottle a metal cap or closure 3 in which is arranged and secured a cork or other sealing disk 4.

The closure 3, is, in accordance with my invention, composed of a single blank of sheet metal, said blank, as seen in Fig. 3, being of circular form and having a series of radial, substantially V-shaped recesses or incisions 5, each opened outwardly at the marginal edge of the blank and forming on the closure a series of radial lips or projections 6, there being preferably an equal number of the recesses 5, thereby producing an even number of lips 6. After forming the blank which may be accomplished by stamping the material, said blank is bent into the initial shape seen in Fig. 1, with the lips 6 semi-circularly grooved and inclined upwardly and outwardly, as shown, after which the disk 4 is fixed in the cap by means of shellac or other suitable adhesive.

In practice, the cap having the sealing disk 4 fixed therein is positioned on the mouth of the bottle and the lips or flanges 6 bent downward, as seen in Fig. 2, thereby carrying the material of the cap inward beneath the head 2 to thus fix the cap securely in place on the bottle neck, it being observed that in bending the lips the spaces 5 allow for the proper displacement of the metal to insure proper disposition of the flanges in engaging the head 2.

It is to be understood that the form of the neck of the container may be varied as desired without defeating the invention and the cap in its initial completed condition is of such size that it must be snapped under pressure over the flange 2 prior to sending the lips or flanges 6 downward for effecting secure engagement of the cap with the bottle neck.

Having thus described my invention, what I claim is:

A bottle closure formed from a single blank of bendable material having a series of radial incisions producing lips or flanges designed to be bent into engagement with a bead formed at the mouth of the bottle, said closure being made in the form of a cap and the flanges being curved inwardly at an intermediate point to produce an engaging portion of restricted diameter to be snapped under pressure over the bead, the incisions being of substantially V-shape to allow for displacement of the material in the formation of the cap.

In testimony whereof, I affix my signature in presence of two witnesses.

FRANK DINGMAN.

Witnesses:
James McNally,
Robert R. Clear.

44

E. D. SCHMITT.

CAP OR CLOSURE FOR MILK AND OTHER BOTTLES.

APPLICATION FILED APR. 13, 1910.

995,377. **Patented June 13, 1911.**

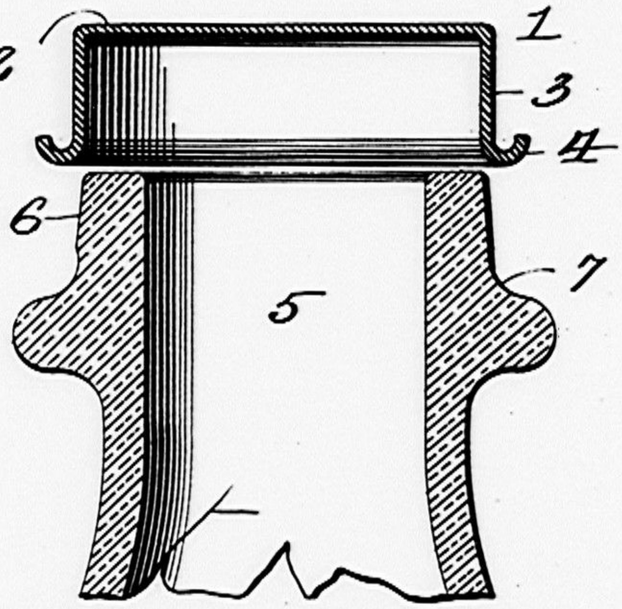


Fig. 1.

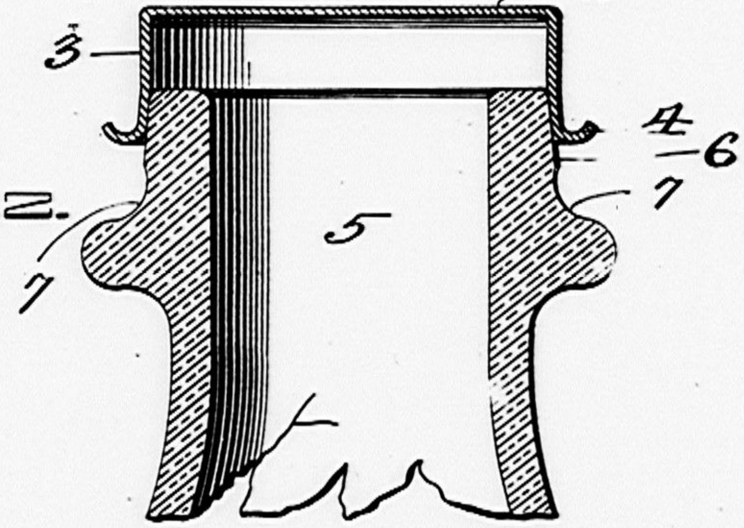


Fig. 2.

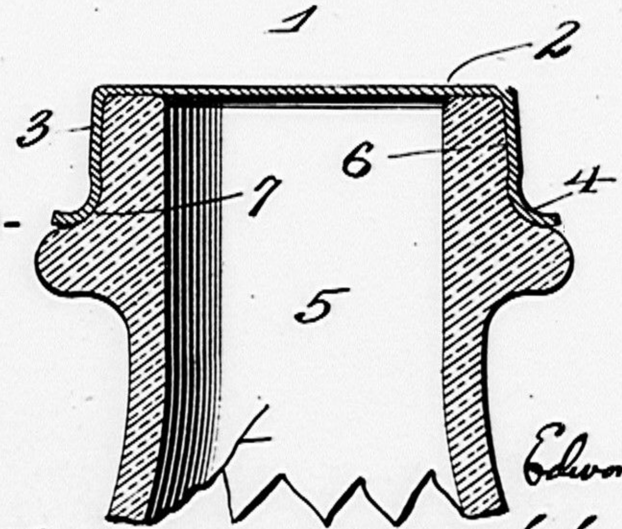


Fig. 3.

Witnesses

W. H. Rockwell

Frank G. Brenton

Inventor

Edward D. Schmitt

By Johnson

Attorney

UNITED STATES PATENT OFFICE.

EDWARD D. SCHMITT, OF BALTIMORE, MARYLAND, ASSIGNOR TO AMERICAN BOTTLE CAP COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE.

CAP OR CLOSURE FOR MILK AND OTHER BOTTLES.

995,377. Specification of Letters Patent. **Patented June 13, 1911.**

Application filed April 13, 1910. Serial No. 555,243.

To all whom it may concern:

Be it known that I, Edward D. Schmitt, a citizen of the United States, residing at Baltimore and State of Maryland, have invented certain new and useful Improvements in Caps or Closures for Milk and other Bottles, of which the following is a specification.

This invention relates to improvements in closures or caps for jars, bottles and like receptacles.

The invention more particularly relates to a novel closure for milk bottles and has for its object primarily, the provision of a cap that may be readily applied to the bottle by the use of very little force and one which will hold sufficiently by friction to seal and contain the contents of the bottle, but which, at the same time, may easily be removed by hand.

The construction of the jar is such that it is entirely sanitary and in its construction, the interior groove and seat for the ordinary disk closure, is eliminated, the bottle presenting inside of the neck, a perfectly smooth surface, which enables the bottle to be thoroughly cleaned and sterilized and provides no recesses for the accumulation of decomposed milk or cream, which is almost invariably found in the grooves in the interior of the necks of the bottles in common use. Further, by providing the cap on the outside of the neck of the bottle, a smooth outer surface is presented which provides no room for the accumulation of dirt or foreign substances which accumulate on the top of the ordinary disk closure and which, when opened, falls into the milk, or is forced into the milk or other contents of the bottle. This cap about to be described, further eliminates the very objectionable feature of having to use a knife or other sharp-pointed instrument to pry the ordinary disk out of the mouth of the bottle, in doing which, the milk or other contents of the bottle is often splashed out of the bottle, entailing the loss of the contents, and the untidy operation in opening the jar.

In the present invention, I provide the jar with an inclined outer annular surface, inclining downwardly and outwardly for a short distance from the mouth and terminating in an annular shallow depression. The cap which is made preferably of strawboard, and therefore readily yielding, so as to require little pressure in its application, is reinforced at its lower edge by turning the lower edge up slightly and thereby putting more material in the lower edge of the flange of the cap than in the body. By doing this, I am enabled to force the flange of the cap down the incline on the outer surface of the bottle, without splitting or rupturing the lower edge and at the same time, making a close frictional contact between said inclined portion on the jar and the inner surface of the flange of the cap. When the cap has been completely pressed in place, the reaction of the additional material in the lower edge of the cap and immediately adjacent thereto, seats the lower edge of said flange in the groove with sufficient tightness to prevent accidental displacement in handling, but at the same time, permit the cap to be removed by a very inconsiderable force when intentionally and properly applied, for the purpose of removing the cap.

Other advantages of the invention will become apparent from the course of the following description.

In the drawing: Figure 1 is a sectional view of the cap and upper portion of the bottle to which it is adapted to be applied; Fig. 2 is a similar view showing the cap in a position it would occupy when partly applied to the cap; and Fig. 3 is a similar view showing the cap applied.

Referring to the drawings, the numeral 1 designates a non-metallic cap, preferably made of straw board, paraffined or not, as the exigencies of the case may require. This cap is formed with a flat upper surface 2, a straight flange 3 which is reinforced at its lower edge by the provision of a slightly turned up portion 4. By the provision of the turned-up portion, the lower part of the cap is strengthened and material is provided which is sufficient to undergo the strain in applying the same to the jar and to compensate for the changes in form of the lower portion of the cap in its application to the bottle. The numeral 5 designates the bottle which I form with an inclined annular outer surface 6 terminating at the lip of the bottle and extending downwardly and outwardly and verges at its lower end into a shallow annular recess 7 in which the lower portion of the flange of the cap is adapted to rest when the cap is applied.

In applying the cap, the internal diameter of which is normally about the same as the bottle adjacent to the lip, the inner wall of the flange will engage the inclined surface 6 of the bottle, and be expanded laterally thereby bringing it in close frictional contact with such surface, and as the cap is forced downward to its final position, considerable tension will be brought upon the flange of the cap, particularly at the lower edge thereof, causing the slightly curved lower edge of the cap to unfold or straighten out to a certain extent, as shown in Figs. 1 and 2, until it assumes about the position shown in Fig. 3, wherein a reasonably and sufficiently tight frictional contact is made between the cap and the outer surface of the bottle.

The fact of providing the cap at its lower edge with a reinforced portion, completely obviates the likelihood of slitting the cap in forcing it into place, which would invariably be the case where the flange of the cap was straight. The frictional contact between the cap and the bottle is such, and the material of the cap is such, that very little force is required to apply the cap and consequently, very little force is required to remove the said cap. However, the force both incident to the application and the removal of the cap is such as to make a sufficiently tight seal, in application, and at the same time, to be removed with sufficient ease in opening, as the purpose of the invention, when applied to milk or other bottles, demands. The closure may be made entirely air-tight and sanitary by dipping the same in a bath of paraffin or other like material.

While I have described the invention as being particularly applicable to milk bottles to which it is admirably adapted for innumerable reasons, it is to be understood that the invention may have other uses in stoppering or closing bottles where it is desirable to effect a seal just sufficient to hold the contents, but not sufficient to resist internal pressures, and in such instances, the whole cap and mouth of the bottle may be paraffined to keep the contents from outside atmospheric influences.

From the foregoing it will be seen that a closure is provided that at once presents a great many advantages from a sanitary standpoint and one which will be cheap to manufacture, easily applied and readily removed.

Having thus described my said invention, what I claim is:—

1. The combination with a bottle or jar having the exterior surface of its neck inclined and provided with an annular depression below said inclined surface, of a cap formed with a flange of flexible material, said flange having its lower edge terminating in an outwardly-extending portion, whereby, by reason of its flexible character, said flange will accommodate itself to said inclined surface and the depression, without the danger of splitting.

2. The combination with a bottle or jar having the exterior surface of its neck inclined and provided with an annular depression below said inclined surface, of a cap composed of straw-board, said cap having the lower edge of its flange curved outwardly, whereby, by reason of its flexible character, it will expand and contract to conform to the inclined surface and annular depression, respectively, without splitting.

3. The combination with a bottle or jar having an annular depression on the neck thereof and a surface above said depression of greater diameter than the jar neck at the point of depression, of a cap formed with a flange of flexible material, said flange being of slightly less internal diameter normally, than the surface of the bottle or jar above the depression and having its lower edge terminating in an outwardly extending portion, whereby, by reason of its flexible character, said flange will accommodate itself to the surface above the depression and to the depression without danger of splitting.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD D. SCHMITT.

Witnesses:
HENRY WILLIAM HARDWICK,
DAVID A. RALSTON.

F. W. SCHWENCK.

BOTTLE CLOSURE.

APPLICATION FILED JULY 22, 1912.

1,060,369. Patented Apr. 29, 1913.

FIG. 1

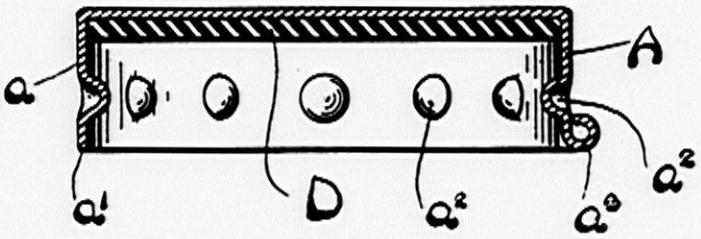


FIG. 2

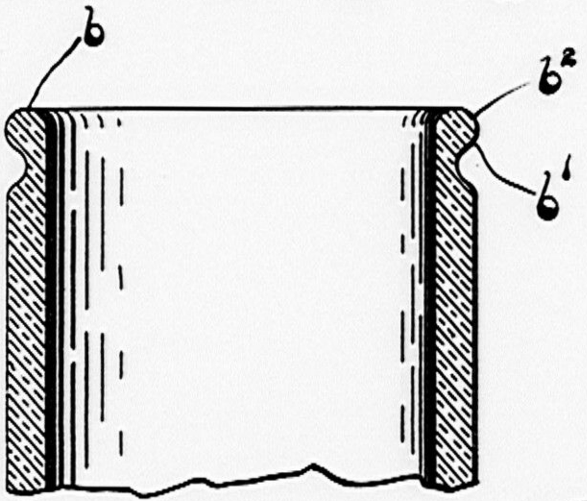


FIG. 4

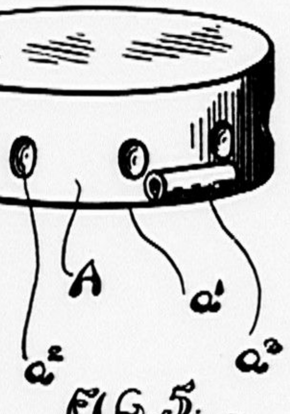


FIG. 3

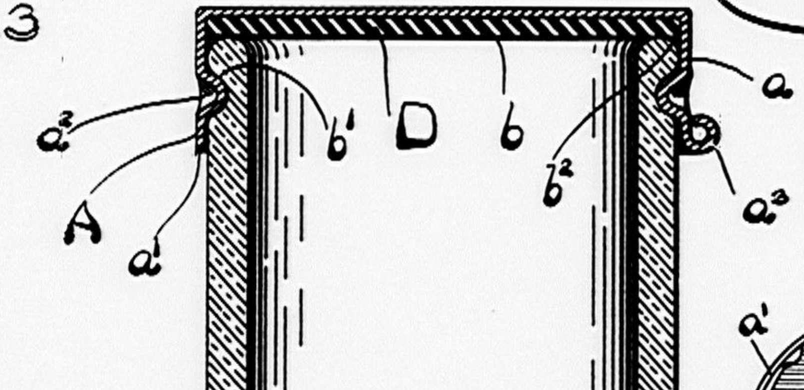
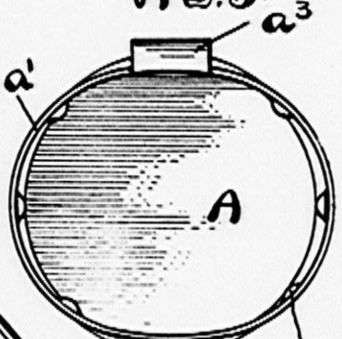


FIG. 5



Witnesses
A. Thornton Bogert
W. R. Kropff

Inventor
Frederick W. Schwenck
By Murray & McCallister
Attorneys

UNITED STATES PATENT OFFICE.

FREDERICK W. SCHWENCK, OF CINCINNATI, OHIO.

BOTTLE-CLOSURE.

1,060,369. Specification of Letters Patent. **Patented Apr. 29, 1913.**

Application filed July 22, 1912. Serial No. 710,769.

To all whom it may concern:

Be it known that I, Frederick W. Schwenck, a citizen of the United States of America, and resident of Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Bottle-Closures, of which the following is a specification.

The object of my invention is a bottle closure, which may be secured, without the use of implements, in position to close a bottle securely, and may be removed without implements therefrom.

In the accompanying drawings Figure 1 is a central sectional view of a cap of my invention. Fig. 2 is a vertical sectional view of a neck and lip of a bottle adapted to receive the cap. Fig. 3 is a vertical sectional view of a bottle closure embodying my invention. Fig. 4 is a perspective view of the cap shown in Fig. 1. Fig. 5 is an inverted plan view of the metal cap shown in Figs. 1, 3 and 4.

The cap A has a depending annular flange *a* with a plain annular or elliptical edge *a′*. Above the edge *a′* the flange *a* is encircled by a series of indentations a^2 which are preferably of a semi-spherical shape. The flange of the cap has at one side a curled lug a^3, which is integral with the cap. It is formed by leaving below the edge of the flange a projection of the metal, which is curled upward and outward upon itself. In the top of the cap is a disk D of elastic material, preferably of cork.

Immediately below the lip *b* of the bottle is formed a shoulder *b′*. This shoulder may be formed by making an annular groove in the neck of the bottle. This annular groove preferably is made of a shape such that its cross-section will be semi-circular, in order that the indentations a^2 will fit into it snugly.

The cap is secured upon the bottle by resting its plain elliptical edge upon the tapering lip b^2 and then exerting a downward pressure upon the top of the cap, which will cause the flange to expand sufficiently to cause the indentations to pass over the lip of the bottle and to snap into the annular groove. When the cap is in place on the bottle, the metal flange *a* is slightly distorted or strained, and consequently the indentations a^2 are held or forced by the resiliency of the strained metal, into engagement with the divergent face of the shoulder *b′*. This holds the cap securely in place on the bottle and the disk D is firmly and continuously pressed against the top or lip of the bottle, by the cap. When it is desired to remove the cap an upward pressure upon the lug a^3 may be exerted by means of the thumb to dislodge the indentations from the annular groove and to release the cap from the bottle.

What I claim is:

The combination of a bottle, having an external annular shoulder beneath its lip and a metal cap closing the bottle and comprising a top portion, a continuous and resilient flange integrally formed with the top portion and normally distorted by the shoulder formed on the bottle when the cap is in place on the bottle, projections formed on the inner face of the flange and yieldingly held into engagement with the divergent face of the shoulder on the bottle, by the distortion of the flange, a disengaging lug formed on the lower edge of the flange, and a sealing disk located between the top portion of the cap and the lip of the bottle and surrounded by the flange.

FRED. W. SCHWENCK.

Witnesses:
Ralph H. Inott,
Walter F. Murray.

A. D. RAY.

BOTTLE CLOSURE.

APPLICATION FILED JAN. 11, 1915.

1,153,518. Patented Sept. 14, 1915.

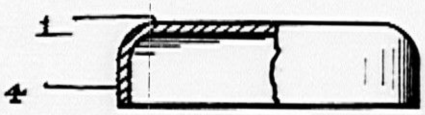


Fig. 1.

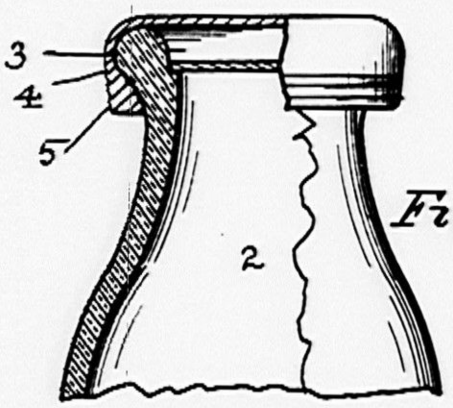


Fig. 2.

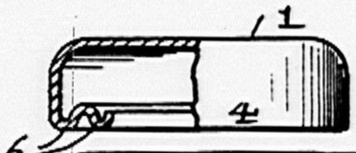


Fig. 3.

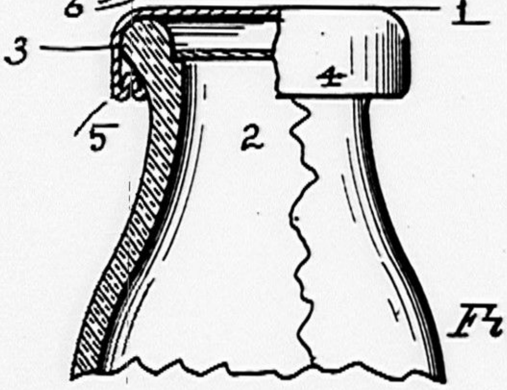


Fig. 4.

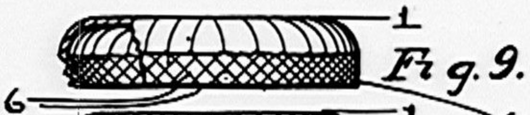


Fig. 9.

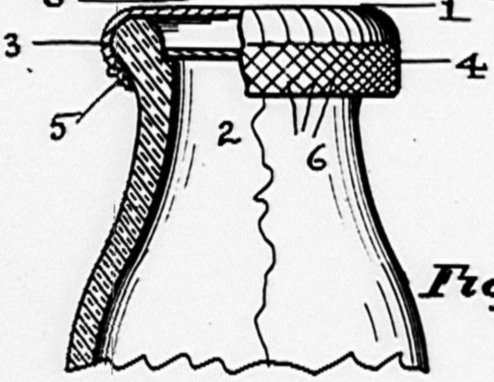


Fig. 10.

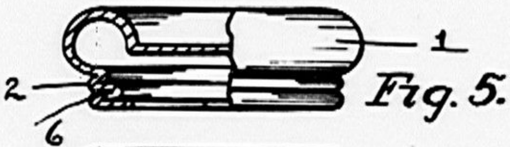


Fig. 5.

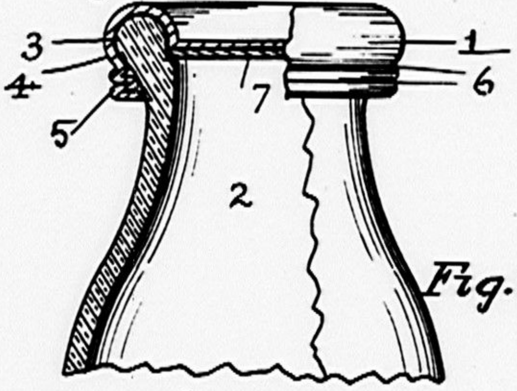


Fig. 6.

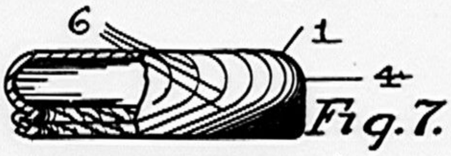


Fig. 7.

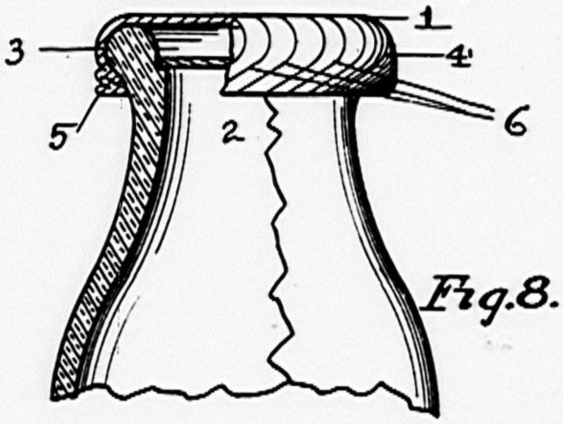


Fig. 8.

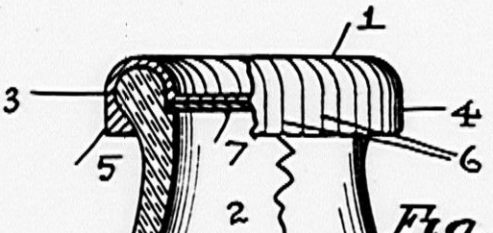


Fig. 11.

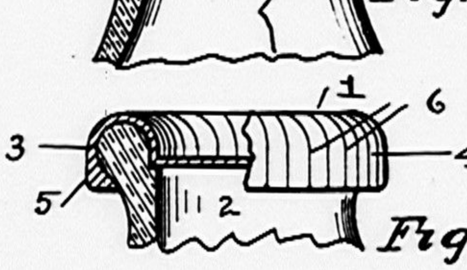


Fig. 12.

WITNESSES:

Anthony Vander Noot

Marcie A. Thompson

Cyrus E. Perkins

INVENTOR

Albert D. Ray

BY

Cyrus W. Rice

his ATTORNEY

UNITED STATES PATENT OFFICE.

ALBERT D. RAY, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-FOURTH TO CLARENCE E. BIGELOW, OF GRAND RAPIDS, MICHIGAN.

BOTTLE-CLOSURE.

1,153,518. Specification of Letters Patent. **Patented Sept. 14, 1915.**

Application filed January 11, 1915. Serial No. 1,485.

To all whom it may concern:

Be it known that I, Albert D. Ray, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Bottle-Closures, of which the following is a specification.

My present invention relates to bottle closures, and its object is to provide an improved sanitary closure for milk bottles and the like, which may be securely attached to the bottle and whereby dust, dirt, etc., may be excluded therefrom. This and any other objects appearing hereinafter, are attained by, and the invention finds preferable embodiment in, the devices hereinafter described and illustrated by the accompanying drawings, in which:—

Figure 1 is a side view, partly in section, of a form of my bottle closure; Fig. 2 is a similar view of the same applied to the bottle; Fig. 3 is a like view of a modified form of my bottle closure; Fig. 4 is a similar view of the same applied to the bottle; Fig. 5 is a like view of a second modified form of my bottle closure; Fig. 6 is a similar view of the same applied to the bottle; Fig. 7 is a like view of a third modified form of my bottle closure; Fig. 8 is a similar view of the same applied to the bottle; Fig. 9 is a like view of a fourth modified form of my bottle closure; Fig. 10 is a similar view of the same applied to the bottle; Fig. 11 is a like view of a fifth modified form of my bottle closure; and Fig. 12 is a similar view with the disk closure omitted.

My bottle closure consists of a cap 1 adapted to close a bottle 2 having an annular neck bead 3. This cap is of suitable non-metallic material, as paper, and has a downwardly-extending flange portion 4 receiving the neck of the bottle and extending below the bead. The portion of said flange thus below the bead is now re-formed or "upset"—*i. e.* thickened by a sufficient compressing force,—to form a ring 5 on the bottom portion of the flange, around the bottle's neck and below and engaging the bead, such ring being much more rigid than the flange before such "upsetting" process. It will be seen that by this process the cap is securely held in place. The cap may be formed plain as shown in Fig. 1, or with crimps or folds 6 as shown in other views. These crimps conduce to a proper and uniform shaping of the ring 5 by the upsetting process. The crimps may be variously disposed: In Fig. 3 they are horizontal, whereby the mouth or bottom of the cap may be distended to pass over the bead; in Fig. 5, they are arranged one above another; in Fig. 11 the crimps are vertical on the flange; and in Fig. 7, they are disposed helically or diagonally as shown. It will be seen that as thus arranged, the mouth of the cap may be distended to pass over the bottle bead, and that thereupon it will through its own elasticity contract to engage below the bead and will thus hold in place without "upsetting"; and further, that this formation of the crimps conduces to the upsetting process whether effected by a force exerted from below, or from the side or in a rotary direction; in Fig. 9 the crimps are disposed helically in opposite directions so as to intersect each other. A suitable adhesive may be applied to the flange, preferably on the outside, to hold the re-formed or "upset" flange securely in such re-formed or "upset" condition. An ordinary disk bottle closure 7 may be employed in connection with my device.

Not confining myself to details of construction shown or described, I claim:—

1. A bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending non-metallic flange adapted to receive the bottle's neck and upset or thickened by compression around the bottle's neck and below the bead.

2. A bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending non-metallic flange adapted to receive the bottle's neck and upset or thickened by compression around the bottle's neck and below the bead, said flange being coated with an adhesive adapted to retain the flange in said upset condition.

3. A bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending non-metallic crimped flange adapted to receive the bottle's neck and upset or thickened by compression around the bottle's neck and below the bead.

4. A bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending non-metallic crimped flange adapted to receive the bottle's neck and upset or thickened by compression around the bottle's neck and below the bead, said flange

being coated with an adhesive adapted to retain the flange in said upset condition.

5. A bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending non-metallic flange with helically-disposed crimps and adapted to receive the bottle's neck and upset or thickened by compression around the bottle's neck and below the bead.

6. A bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending non-metallic flange with helically-disposed crimps and adapted to receive the bottle's neck and upset or thickened by compression around the bottle's neck and below the bead, said flange being coated with an adhesive adapted to retain the flange in said upset condition.

7. For a bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending flange with helically-disposed crimps and adapted to receive the bottle's neck and to be contracted below the bead.

8. For a bottle having an annular neck bead, a bottle-closing cap having a downwardly-extending flange with helically-disposed crimps and adapted to receive the bottle's neck and to be contracted below the bead, said flange being coated with an adhesive adapted to retain the flange in said contracted condition.

In testimony whereof I have hereunto set my hand in presence of subscribing witnesses.

ALBERT D. RAY.

Witnesses:
CYRUS W. RICE,
CLARENCE E. BIGELOW,
MARION A. THOMPSON.

E. L. BLAKESLEE.

BOTTLE CAP.

APPLICATION FILED NOV. 27, 1914.

1,158,622. Patented Nov. 2, 1915.

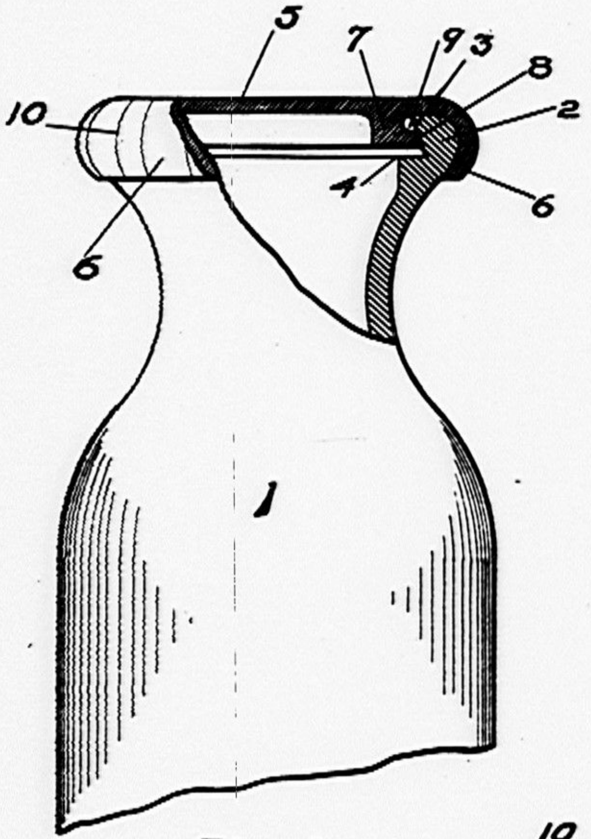


Fig. 1

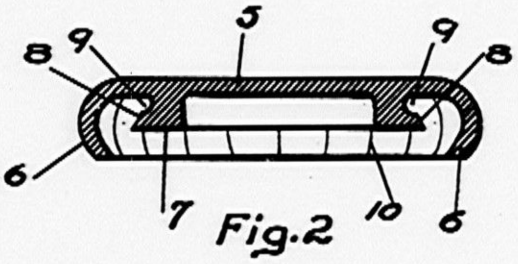


Fig. 2

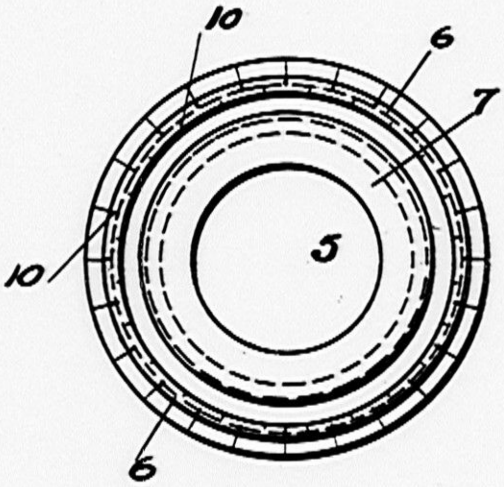


Fig. 3

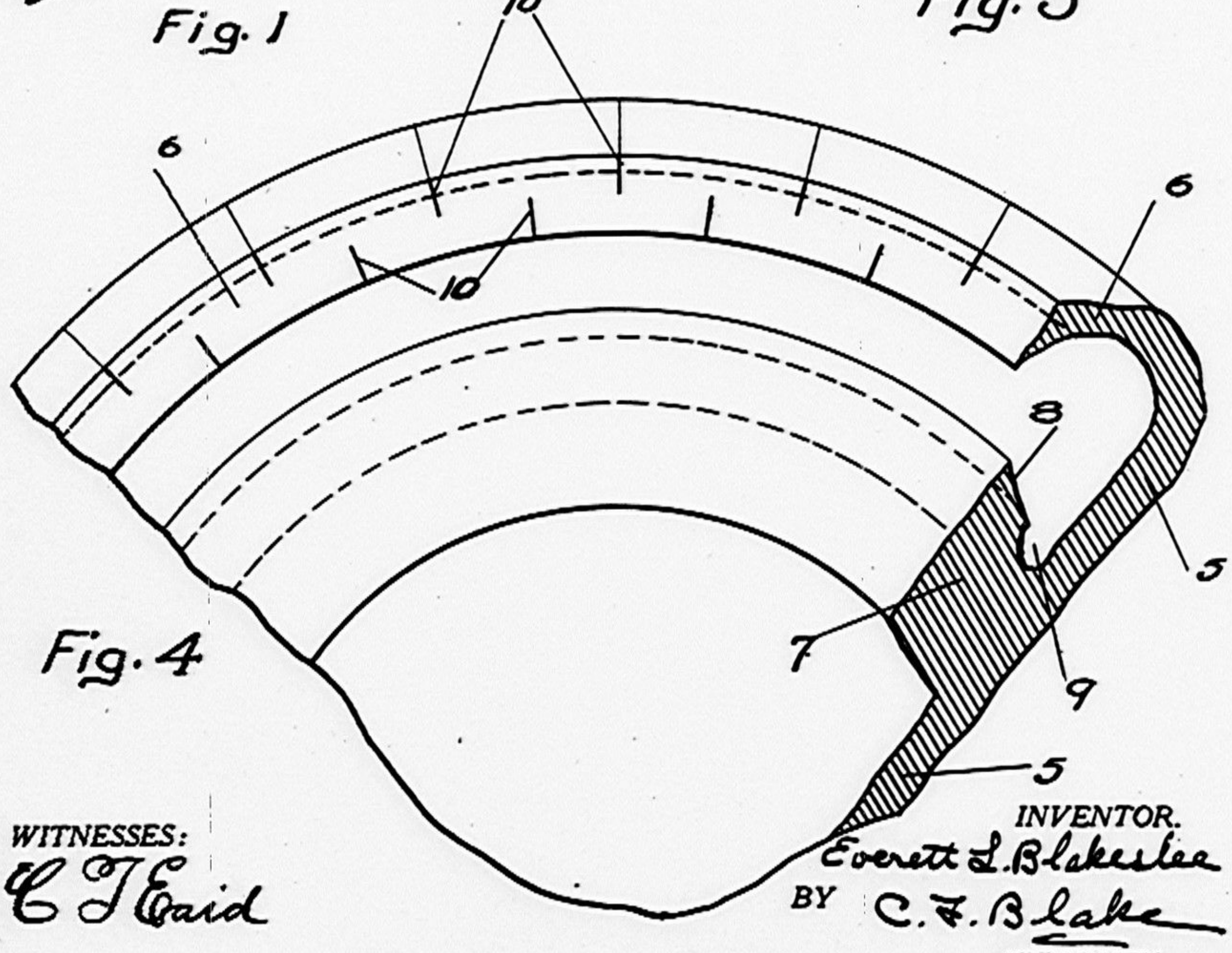


Fig. 4

WITNESSES:

C. T. Eaid

INVENTOR.

Everett L. Blakeslee

BY C. F. Blake

ATTORNEY

UNITED STATES PATENT OFFICE.

EVERETT L. BLAKESLEE, OF PORTLAND, OREGON.

BOTTLE-CAP.

1,158,622. Specification of Letters Patent. **Patented Nov. 2, 1915.**

Application filed November 27, 1914. Serial No. 874,247.

To all whom it may concern:

Be it known that I, EVERETT L. BLAKESLEE, a citizen of the United States, residing at Portland, in the county of Multnomah, State of Oregon, have invented certain new and useful Improvements in Bottle-Caps, of which the following is a specification.

My invention relates to caps for use upon milk bottles and other similar receptacles, and the objects I have in view are: First: to provide a cap which shall so cover the mouth of the bottle, over which the contained liquid must be poured when emptying, as to protect said mouth from all extraneous matter and keep same always clean and sanitary while capped. Second: to provide a cap which shall present a smooth exterior, having no depressions to receive and retain extraneous matter either liquid or otherwise. Third: to provide a cap which will cork the bottle securely. Fourth: to provide means whereby the corking portion of the cap may be somewhat elastic or yielding in form, and thereby adapted to readily conform to the bottle neck, should same be of slightly varying sizes or of irregular form, other than exactly circular. Fifth: to provide an elastic or yielding edge upon the outside portion of the cap whereby the cap is adapted to be easily applied to the bottle and to closely conform to the shape of the bottle after being placed upon same. Sixth, to provide a cap wherein the elastic corking portion, by means of its expansion within the bottle, shall cause the cap to be drawn tightly down upon the lip of the bottle.

I attain the above objects by the construction illustrated in the accompanying drawing, which therefore becomes a part of this application for Letters Patent, and in which:

Figure 1. is an elevation of a bottle with the cap in place, being partially broken away to illustrate the construction. Fig. 2. is a sectional view of the cap. Fig. 3. is an elevation of the inside portion of the cap. Fig. 4. is a fragmentary portion of the cap upon an enlarged scale.

Like characters indicate like parts throughout the several views of the drawing, in which:

Numeral 1 is the bottle, having an enlarged and rounded lip 2 surrounding the mouth, a recessed or dovetailed interior surface 3, and an annular shoulder 4, all of which are to be found upon the ordinary milk bottle of commerce, are therefore well known to the art and require no further description or illustration.

The cap is formed of a disk portion 5 of even thickness, having an edge portion 6 turned down over the lip 2 of the bottle.

Integrally attached to the inside of the disk portion 5 is a corking portion 7, adapted to enter the mouth of the bottle and securely cork same by expanding into the dovetailed portion 3 of the bottle. Said corking portion 7 is of annular construction as shown in Figs. 2 and 3, and thus by means of the natural elasticity of portions 5 and 7 may assume a shape other than circular if the configuration of the orifice in the bottle requires it. The corking portion is provided with a recessed or dovetailed face 8 adapted to enter the corresponding recessed or dovetailed portion of the bottle, and to fit tightly against the surface 3 of the bottle. The elasticity of the corking member 7, due to its annular construction, causes the same to expand in all directions radially and normally to the axis of the bottle, into the recess in the bottle-neck, this causing the dovetailed face 8 of the corking member to contact with the dovetailed face 3 of the bottle. The contact of these dovetailed faces, under the expanding force of the corking member, produces a component force parallel to the bottle axis, which component forces the disk portion of the cap upon the bottle lip.

An annular groove 9 is provided upon the periphery of the corking portion 7 immediately adjacent the disk portion 5, for the purpose of providing some elasticity at the point of juncture of the portion 7 with portion 5.

The turned down portion 6 of the disk is rendered elastic or yielding by oppositely disposed indentures 10, each indenture passing partially through the thickness of portion 6, as shown in Fig. 4, and upward toward the top of the cap as shown in Figs. 1 and 2.

My invention may be constructed of any material and made of any size deemed suitable for such a device. As a preferred method of construction I cast the cap partially to form from any desired and suitable material adapted to be finely divided, and when so divided carried in suspension in a liquid, as what is known commercially as liquid paper pulp. I finish the cap in dies which give the corking portion 7 the required finished shape, and also provide the incisions 10 in portion 6.

While I have illustrated a preferred form of construction and combinations of elements considered essential in materializing my invention, I wish to include in this application all mechanical equivalents and substitutes that may be fairly considered to come within the scope and purview of my invention as herein described and as defined in the appended claims.

Having thus described my invention so that others skilled in the art may be enabled to construct and use same, what I claim as new and wish to secure by Letters Patent, is:—

1. In a device of the character described, a cap, comprising a flat disk, an edge member turned substantially normal to said disk, said edge member being rendered elastic or yielding by means of indentures therein, an annular corking member integrally attached to said disk, said corking member being rendered elastic or yielding by means of its annular construction, substantially as described.

2. In a device of the character described, a cap, comprising a flat disk, an annular edge portion integrally attached to said disk and forming a dish shaped contour therewith, said edge portion being rendered elastic or yielding by means of indentures therein, an annular corking member integrally attached to said disk within said edge portion, said corking member having a dovetailed outer periphery and a groove upon the outer periphery intermediate said dovetailed portion and said disk, substantially as described.

3. A bottle cap comprising in one piece a disk, an annular edge portion turned substantially normal to said disk for the purpose of embracing the lip of a bottle, said edge portion being rendered elastic or yielding by means of indentures therein, said indentures upon the outer surface of said edge portion being alternately disposed relative to those upon the inner surface of said edge portion, an annular corking member within said edge portion, said corking member having a beveled or dovetailed peripheral face adjacent said edge member, and adapted to engage the dovetailed portion of the bottle neck, and an annular neck or connection member intermediate and connecting said disk and said corking member, said connecting member having a groove in the outer peripheral face thereof.

In testimony whereof, I claim the above as my own, I herewith affix my signature in the presence of two witnesses.

EVERETT L. BLAKESLEE.

Witnesses:
David E. Lofgren,
Esther Sodergren.

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Oct. 12, 1926. **1,603,057**

W. L. WRIGHT

CAPPING MILK BOTTLES AND OTHER CONTAINERS

Filed July 12, 1923

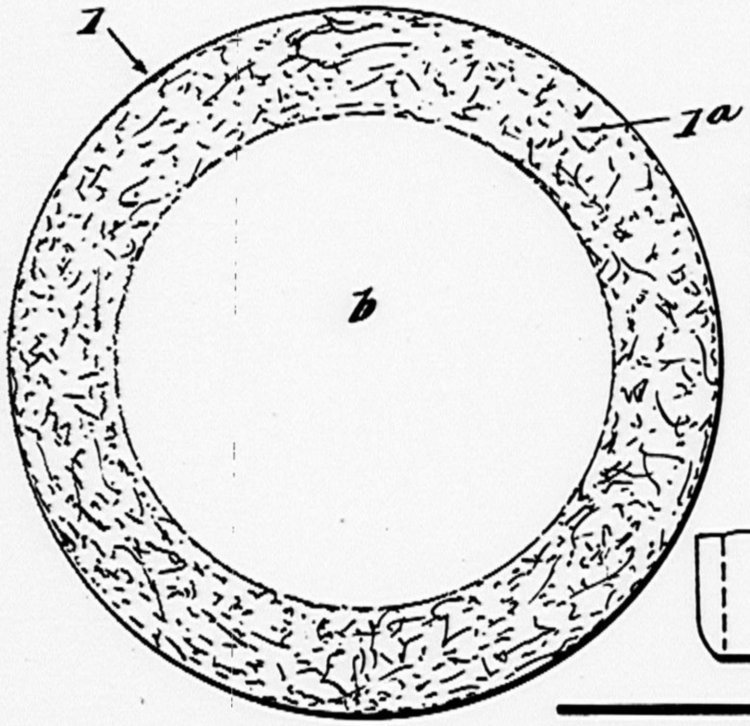


Fig. 1.

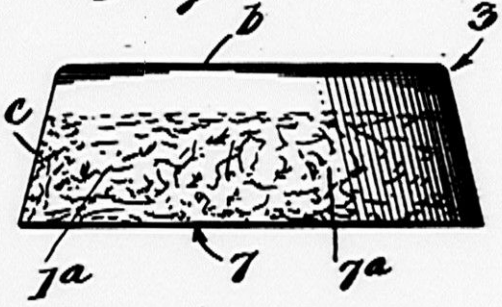


Fig. 5.

Fig. 3.

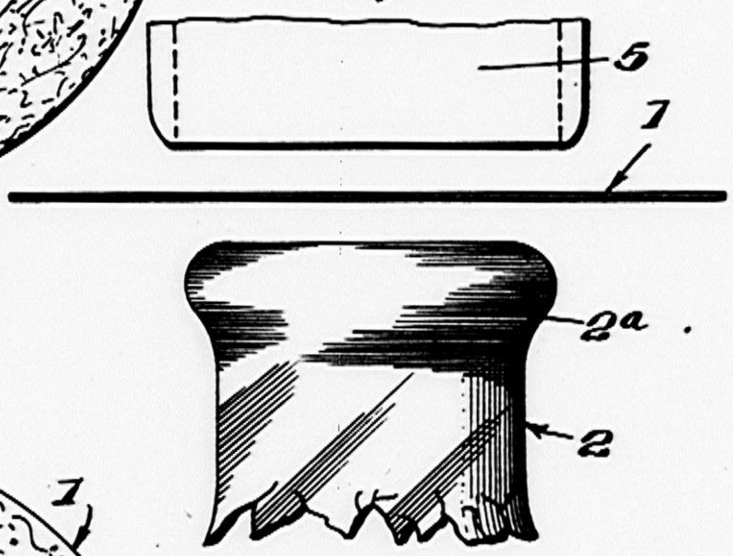


Fig. 2.

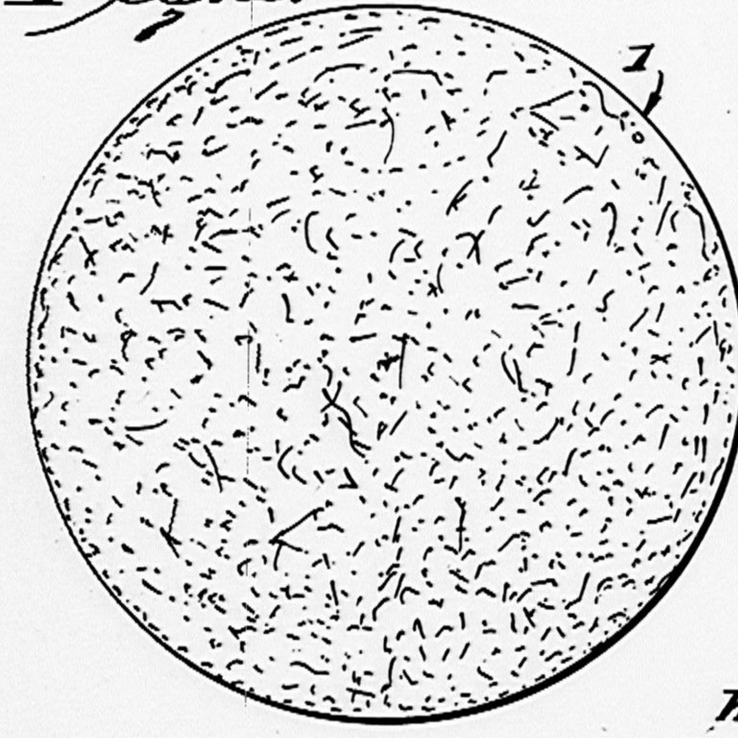
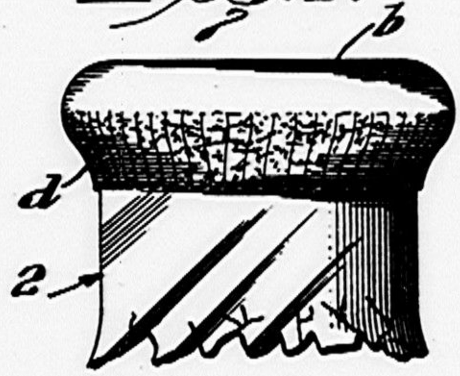


Fig. 4.



Inventor

Wilbur L. Wright,

Witness:

Robert F. Beck

By

Hubert E. Peck Attorney

Patented Oct. 12, 1926. **1,603,057**

UNITED STATES PATENT OFFICE.

WILBUR L. WRIGHT, OF FULTON, NEW YORK, ASSIGNOR TO OSWEGO FALLS CORPORATION, OF FULTON, NEW YORK, A CORPORATION OF NEW YORK.

CAPPING MILK BOTTLES AND OTHER CONTAINERS.

Application filed July 12, 1923. Serial No. 650,980.

This invention has relation to the provision of sheet paper or other fibrous material in the form of or for the formation of container mouth hood covers, and particularly involves a paper or other fibrous material disk either in hood cap form or in flat form, as an article of manufacture, that possesses certain peculiar characteristics, whereby such disk is adapted, when softened by heat, to be molded and secured by contraction under the exterior rim of a container mouth or into exterior depressions or irregularities of the container mouth or neck, to become stiff or approximately rigid when cool and to maintain its position covering and locked on the container by reason of the stiffness or approximate rigidity of the contracted part of the set disk thus shaped on the container, without added or separate bands, ties or other fastening means; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanations of the accompanying drawings that illustrate what I now believe to be the preferred mechanical expressions or embodiments of my invention from among other forms, substances, compositions, constructions, and adaptations within the spirit and scope of my invention.

An object of the invention is to provide an inexpensive effective sheet paper material hood cap or hood cap disk for containers, particularly for glass bottles and the like, carrying a binder that is of high-melting-point quick-setting, and normally-hard, and that imparts to the portion or portions of the hood cap carrying the same sufficient strength for hood cap securing purposes and the characteristic of being capable of stripping or peeling from glass surfaces without leaving an objectionable glass fouling deposit such as results from attempts to employ paraffin alone to bind hood caps on glass bottles, without noting the softness, low melting point, low strength, and slow setting properties of such paraffin.

With this and other objects in view, my invention consists in hood cap sheet paper or other fibrous material possessing certain characteristics as more fully and particularly appearing and specified hereinafter.

Referring to the accompanying drawings, forming a part hereof:—

Fig. 1 shows a sheet disk in plan embodying my invention and particularly intended to be molded over a container mouth to form a hood cap or cover thereon in accordance with my invention.

Fig. 2 likewise shows in plan a sheet material disk of my invention adapted to be pressed into hood form on a container mouth, the sheet material being impregnated or treated throughout with material or substances within the scope of my invention.

Fig. 3 more or less diagrammatically illustrates in side elevation, a bottle mouth, a forming head, and in edge view a disk of Figs. 1 or 2 in heated condition to be pressed down and molded on the bottle mouth by any suitable head diagrammatically illustrated.

Fig. 4 shows a bottle mouth and the sheet disk shaped thereon to form a hood cap or cover self secured thereon.

Fig. 5 shows in side elevation, paper or other sheet fibrous material possessing the characteristics of and embodying my invention, and in skirted or flared hood form for application in such form to container mouths for securing thereon, when softened by heat, by contraction under the exterior container mouth rim.

In carrying out my invention, flat sheet disks 1 are punched or stamped from sheet material such as paper or other fibrous material suitable for the uses to which the completed disks are to be applied, such as exteriorly capping the mouths of containers. These flat disks 1 are of a size to form a skirted or flanged cover or hood cap, such as 3, that will exteriorly cover and protect the mouth portion of a container, such as bottle 2, and fit under the shoulder formed by the annular exterior rim 2ª, of the mouth portion thereof, or otherwise to lock the cap on the bottle mouth by contraction into a depression or under a projection at the exterior of the neck.

It is a characteristic of my invention that by embodying in the disk certain substances or their equivalents, I can form each disk of a single ply or layer of thin inexpensive fibrous material such as certain commercial papers or so-called pulp boards, without building up special material layer by layer or otherwise constructing the same in laminated or multi-ply form to structurally include therein layers of one or more materials. I have discovered that a sheet of comparatively thin flexible commercial paper of one thickness, when carrying any one or more of several substances such as waxes that meet certain requirements, distributed throughout a sheet of such paper, or if only at the portions thereof that are to perform securing or holding functions, will possess certain characteristics necessary for hood cap purposes, under my invention. For instance, sheet fibrous material suitable for hood cap purposes, impregnated in whole or in part with any one of certain synthetic waxes or insoluble soaps, or with carnauba wax, or with bleached refined Montan wax, or with shellac wax, or with a composition of candelilla wax and paraffin oil, or with the commercial product known as Smith and Nichols vegetable wax, possesses characteristics within the spirit and scope of my invention.

I find that sheet paper material that embodies any one or more of such substances remains stiff or set at the portions treated therewith, at atmospheric or climatic temperatures, and becomes soft, pliable or moldable when heated to the necessary temperatures, is perfectly sanitary for use on or in connection with food products, is approximately insoluble in water, is without objectionable odor when cool or set, does not attract vermin or insects, is non-poisonous, does not foul or objectionably adhere to glass or to the surfaces of the cap forming or applying head, and is not seriously objectionable in color.

The single ply or thin paper material disks can be treated with one or more of the waxes and insoluble soaps hereinbefore mentioned, by dipping in the wax while such wax is in the melted state, or in any other suitable manner. I prefer to impregnate the paper or sheet fibrous material with the molten wax and drain or otherwise remove surplus wax from the surface of the paper. As at present advised by experience, I wish to avoid excess exterior coatings of the wax on the surfaces of the paper but wish the wax to fill or impregnate the body or interior of the paper, as the excess surface coatings are but surplusage and when the paper is heated to the wax melting point such surplus surface coatings are liable to flow therefrom to adjacent or contacting objects. The wax is reduced to the melted state by heat, and when the liquid wax is applied to the paper sheet, or the paper sheet is completely or partially dipped or immersed in the wax, the wax is absorbed or otherwise taken up by the paper which then becomes internally impregnated with the wax. I preferably drain or otherwise dewax the paper surfaces to remove exterior or surface wax from the paper to avoid excess exterior coatings of wax or wax surplusage, while retaining sufficient wax within the body of the paper and on the surface thereof, for the purposes of my invention. Any suitable method can be followed to remove exterior surplus wax from the paper.

The paper disks 1, can be impregnated and thereby rendered normally stiff at their edge portions only, see 1^a, Fig. 1, or can be rendered normally stiff throughout by more or less complete impregnation, as indicated by the disk 1, of Fig. 2.

In both forms, however, the disk when softened by heating to or above the melting point of the binder, is molded, shaped or pressed on the bottle mouth into hood cap form, by any suitable forming, pressing or spinning head 5, diagrammatically indicated in the drawings. The hood cap thus formed on the bottle mouth from the flat disk 1 when softened by heat, has a usually flat central portion *b* (whereon usually appear certain exposed display indicia, legends or advertising) and an annular depending skirt or flange *c* that quickly sets and is contracted at *d* under the exterior rim of the bottle mouth, and that becomes stiff or more or less rigid at climatic or atmospheric temperatures to secure or lock the hood cap on the bottle mouth. The skirt or flange thus provides the self securing or locking portion *d* of the hood cover, and it is essential that at least the portion of the paper disk 1 that is to form this part *d* of the hood cap, be impregnated with one or more of the waxes hereinbefore mentioned or the equivalent thereof.

The flat paper disks will be usually placed on the market properly impregnated with one or more of the waxes or equivalent substances, usually with the central portions of the disks imprinted or bearing the desired display matter.

The bottlers will purchase these flat treated paper disks, and will be equipped with proper implements or machines for molding the flat disks, when softened by heat, directly on the bottle mouths to form the hood caps thereon, in such manner that said caps remain locked or secured on the bottle mouths by the stiff or rigid contracted flanges of the caps. The softened portions of the caps, quickly cool to atmospheric temperatures and quickly become set and rigid so that removal of the cap preferably requires rupture or tearing of the flange thereof, although this can be accomplished by the fingers without the use of special or other tools.

Bleached Montan wax, carnauba wax, candelilla wax, shellac wax, and Smith and Nichols vegetable wax are waxes of commerce and are known in commerce by these names. Shellac wax is obtained in the process of refining shellac, and is derived from the secretion of an insect. Montan wax is a mineral product produced in Europe but for the purposes of my invention it is necessary to use the refined or bleached commercial product of this wax, either alone or mixed with a small proportion of paraffin oil, or other neutral wax, grease or oil, suitable for the purpose.

Carnauba, candelilla, and Smith and Nichols, are vegetable waxes and for my purposes can be mixed with usually small proportions of paraffin oil, or other neutral waxes, oils or greases of the proper characteristics. It is believed to be necessary, however, to mix the candelilla wax with paraffin oil or its equivalent in about the proportions of two parts wax to one part oil, to produce a composition suitable for my purposes, for this wax when used for my purposes without being thus diluted sticks to glass and metal and tends to foul the bottle neck and cap forming head. The paraffin oil, or its equivalent, corrects this difficulty and renders the wax neutral as an adhesive for glass and metal when impregnating the paper disk.

All of these waxes even when mixed with paraffin oil in proper proportion, are homogeneous masses or solids at atmospheric or climatic temperatures and paper impregnated therewith remains sufficiently stiff, set or rigid at such temperatures for the purposes of my invention, and becomes soft or moldable when heated approximately to the melting points of the waxes which is approximately between 150° and 200° F.

Paper or other sheet fibrous material impregnated with or embodying various insoluble soaps or so-called synthetic waxes, also possesses the characteristics of, and is within the scope of my invention. Such insoluble soaps are solids at climatic temperatures and have melting points around 270° F. more or less, and can be composed of Montan, carnauba, or candelilla wax, stearic acid, and other ingredients. For instance, I find that compositions about as follows are suitable for the purposes of my invention, namely:—

(1)	Montan wax	500 g.
	Stearic acid	270 g.
	Soda ash solution	15½ g.
	Magnesium acetate solution	17 g.
	Caustic aluminum solution about	37½° Bé–50 c. c.

For use for my purposes, this composition is mixed with paraffin oil in the proportion of about 20 parts of composition to 1 part oil.

(2)	Carnauba wax	420 g.
	Stearic acid	420 g.
	Magnesium acetate solution	15 g.
	Caustic aluminum solution about	37½° Bé–75 c. c.

This composition is also mixed with paraffin oil in about the same proportions as where the composition (1) is used.

(3)	Candelilla wax	160 g.
	Stearic acid	640 g.
	Magnesium acetate solution	10 g.
	Paraffin	48 g.
	Caustic aluminum solution about	37½° Bé–120 c. c.

For my purposes this composition is mixed with paraffin oil in about the proportions of ten parts composition to one part oil.

The proportions of the ingredients of the several compositions can be varied and also equivalent ingredients can be employed in each composition, and I do not wish to limit my invention to the compositions as outlined but wish to cover and include sheet material possessing the characteristics of my invention whatever waxes, compositions or substances suitable for the purpose, may be included or embodied therein.

In the compositions indicated caustic solutions of other metals than aluminum can be employed to form an insoluble stearate or palmitate (for example, such as lead).

Paper or other fibrous sheet material of my invention hereinbefore described possessing the characteristics substantially as pointed out, can be put on the market in various forms, and shapes for container capping and other purposes, and I do not wish to limit all features of my invention to the flat disk form, hereinbefore described.

For instance, in Fig. 5, I show such sheet material of my invention in premolded, drawn or pressed into flanged, skirted or flared hood cap form, for the market. These caps 7, of Fig. 5 can be prepared for the market from the flat disks of Figs. 1 or 2, either impregnated at the lower edge or securing portions of their skirts 7ª, or impregnated throughout. These flared skirted caps are usually pressed or drawn by dies from commercial sheet paper such as pulp board, as hereinbefore described, and then impregnated with any one or more of the commercial or synthetic waxes hereinbefore mentioned, as described in connection with the flat disks. Surplus or surface coating wax is preferably removed from the skirted caps, before they are ready for packing and shipment.

These skirted treated caps, are flared so that they can be nested to reduce the space required for packing, and also to facilitate the application thereof to bottle mouths. These flared skirted caps are softened by heat before or after they are slipped onto the bottle mouths, and while so softened, any suitable means is utilized to contract the securing impregnated portions of the cap skirts, to fasten and secure the caps on the bottle mouths, by the cooling and setting thereof, as hereinbefore described in connection with the flat impregnated disks.

No claim is made herein specifically to a paper material hood cap carrying any one of the so-called synthetic wax or insoluble soap binders, as claim thereto is made in my hood cap application filed Sept. 15, 1926, Ser. No. 135,668.

Also, no claim is made herein specifically to a paper material hood cap carrying a binder composition that includes a hard high melting point ingredient and a soft modifying ingredient, as such as specifically claimed in my pending hood cap application filed Jan. 29, 1923.

Various changes, modifications and variations can be resorted to without departing from the spirit and scope of my invention, hence I do not wish to limit myself to the exact disclosures hereof.

Desiring to protect my invention in the broadest manner possible under the law, what I claim is:—

1. In combination with a bottle having an enlarged mouth portion, of a cap molded snugly over the enlargement thereof, said cap being impregnated with a quick setting binder, said binder in its solidified form not objectionably adherent to glass and having no tendency to foul the same as a result of the molding and cooling of the cap incident upon its application to the bottle mouth, whereby the cap is held in position on the bottle mouth by the rigidity of the contracted portion of the cap below the enlarged mouth portion which forms a camlike obstruction against removal of the cap.

2. In combination with a bottle having an exteriorly enlarged mouth portion, of a paper hood cap fitted over said mouth portion with its skirt molded snugly to and contracted under said enlargement and securing the cap tightly down on the bottle mouth by the non-adhering contact between said contracted skirt portion and said bottle enlargement, the annular securing portion of said cap skirt embodying a quick setting binder, said binder in its solidified form not adherent to glass and having no tendency to adhere thereto as a result of the molding and cooling of the cap incident upon its application to the bottle mouth.

3. In combination with a bottle having an enlarged mouth portion, of a sheet fibrous material hood cap having an annular securing skirt portion impregnated with a hard quick-setting binder that strips or peels from glass surfaces, said cap being fitted snugly over said mouth portion with its securing skirt portion molded to and contracted in rigid form under said enlarged portion and thereby secured down on the bottle mouth.

4. In combination with a bottle having an enlarged mouth portion, of a thin sheet paper material hood cap covering said mouth portion, the skirt of said cap having an annular non-glass fouling securing portion carrying a hard wax-like binder, said securing portion being molded snugly to and set in rigid contracted form under said enlargement into close non-glass fouling contact therewith, whereby said enlargement constitutes an obstruction above said rigid contracted skirt portion to secure the cap down on the bottle mouth.

5. A fibrous sheet material hood cap for covering the enlarged mouth portion of a bottle and secured thereon by molding the cap skirt into rigidly set contracted form under the enlarged bottle mouth portion, the skirt of said cap carrying a quick-setting high-melting-point bottle-surface-contacting binder possessing the characteristic of stripping or peeling from such surface.

6. A hood cap provided with a cap securing quick setting binder rendering the portion of the cap embodying the binder moldable when highly heated and hard and rigid and capable of stripping or peeling from glass bottle surfaces when set.

7. A paper hood cap carrying a quick-setting binder characterized by its capacity of stripping or peeling from glass bottle surfaces.

8. A paper sheet hood cap carrying a cap-securing binder rendered quick-setting and non-adherent to glass bottle surfaces by the presence of a hard wax, such as carnauba wax.

9. A sheet paper hood cap, for covering the exteriorly enlarged mouth portions of glass bottles, carrying a quick-setting cap-securing binder extending to the glass contacting surface of the cap securing portion of the cap skirt and embodying a substantial quantity of a hard high melting point wax that peels or strips from glass bottle surfaces.

10. In combination with a bottle having an enlarged mouth portion, of a single-ply sheet paper material hood cap having its annular skirt carrying a non-fouling hard high-melting point quick-setting binder exposed on the skirt surface, said cap fitting snugly over the enlarged bottle mouth with said skirt molded to and under said enlargement, the rigidly set contracted portion of the skirt located under said enlargement serving to seal and secure the cap down on the bottle mouth.

11. In combination with a bottle having an enlarged mouth portion, of a fibrous sheet material hood cap the skirt of which has an annular securing portion embodying an exposed hard quick setting plastic, such as carnauba wax, said cap snugly covering said mouth portion and contracted into rigid cap securing form under the enlarged mouth portion.

12. A hood cap for a bottle having an enlarged mouth portion, composed of flexible fibrous sheet material and a high-melting point quick-setting binder providing the cap skirt with an annular securing portion having the binder exposed to contact the bottle surface, said securing portion formed and adapted for molding when hot and plastic to and under the bottle mouth enlargement and to set thereunder in rigid contracted cap securing form without leaving an objectionable glass-fouling deposit when removed from the bottle.

13. A fibrous material hood cap carrying a carnauba wax binder.

14. A fibrous material hood cap having the cap securing portion of its skirt impregnated with a carnauba wax binder.

15. A hood cap for glass bottles and other containers, composed of a single-thickness paper material sheet carrying a binder rendering the paper material carrying the same soft for molding when heated to or above the melting point of the binder, and quick setting to hard hood-cap-securing form, and capable of stripping from glass without objectionably fouling the same.

16. A hood cap for containers, composed of a single-thickness sheet of fibrous paper-like material, and a binder contained within the fibrous mass of the sheet and extending to the surfaces thereof, said binder when fused within the sheet by high temperature rendering the portion of the cap containing the binder moldable, quick-setting to approximately hard stiff condition and of non-fouling properties.

17. A paper hood cap for glass bottles and containers carrying a cap-securing normally hard high-melting point quick-setting plastic rendered non-glass fouling by the presence of a substance which has the property of readily peeling from glass.

18. A hood cap for containers composed of a sheet of paper of one thickness the skirt of which carries a quick-setting high-melting point binder rendering said skirt capable of peeling from glass without leaving fouling deposits thereon.

19. A paper hood cap for glass containers containing an internal high-melting point binder impregnum imparting to the cap quick-setting and non-fouling characteristics.

20. A non-fouling hood-cap disk for glass and other containers having an annular cap securing portion composed of a paper sheet carrying a binder of definite high-melting point that renders said sheet moldable when the binder therein is melted by high temperature, and quick setting to a normal rigid condition.

In testimony whereof I have hereunto set my hand at Fulton, N. Y., this 29th day of June, 1923.

WILBUR L. WRIGHT.

133 Endorsed: U. S. Patent Office Board of Appeals
May 22 1940 Mailed

Appeal No. 33,132
Hearing:
May 8, 1940

In the United States Patent Office

Before the Board of Appeals

Ex parte Carl W. Goodwin

Application for Patent filed December 19, 1936, Serial No. 116,705. Paper Article and Method of Forming It.

Messrs. Wright, Brown, Quinby & May for applicant.

This is an appeal from the action of the Primary Examiner finally rejecting claims 1, 2, 3, 4, 6 and 7.

Claim 1 is illustrative and reads as follows:

1. A snap on cover for a container having a larger external diameter at its mouth than immediately therebeneath, which cover comprises a sheeted paper member having a marginal flange of an internal diameter to engage over the mouth of said container, and having a thickened bead portion on the inner face of the free edge of said flange spaced from the inner face of said cover for engagement with said smaller diameter portion of said container, said bead portion being formed from the paper stock to a compasted homogeneous seamless uniform interfelted condition.

The references relied upon are:

Flanigan	521,788	June 26, 1894
Dingman	853,775	May 14, 1907
Schmitt	995,377	June 13, 1911
Schwenck	1,060,369	Apr. 29, 1913
Ray	1,153,518	Sep. 14, 1915
Blakeslee	1,158,622	Nov. 2, 1915
Wright	1,603,057	Oct. 12, 1926

134 Appellant discloses a snap on cover for a container made of paper stock having a bead in compressed condition around its periphery. It is represented that such cover may be snapped onto a receptacle if the diameter of the cover at the inside of the beaded portion is somewhat less than the external diameter at the mouth of the container. We note that appellant in one modification forms slits in the side walls of the beading. We note also that in claim 7 it is recited that the flange between the bead and the flange root is continuous about its circumference. Whether the material is of a character as not to crack under stress in applying to a container under these latter conditions is doubtful. We note all the samples given to us for examination had slits in the side walls.

The prior art shows it is not uncommon to have metal bottle closures which can be snapped on the neck of a bottle.

In addition, patents to Ray, Schmitt, Blakeslee and Wright show a bottle closure made of non-metallic material, as paper. Ray describes a downwardly extending flange portion on a cap received on the neck of a bottle which can be reformed or upset to form a ring around the bottom portion of the flange. The patentee states the mouth of the cap may be distended to pass over the bottle beading and that "thereupon it will through its own elasticity contract to engage below the bead and will thus hold in place without 'upsetting.'" He provides crimps on the sides of the flange just as appellant provides notches
135 in the side walls of the down-turned flange.

Schmitt also is concerned with a non-metallic cap made of straw board, paraffined or not. The lower part of the cap has a turned-down portion. The patentee teaches the lower edge turned up slightly to put more material into the lower edge of the flange to prevent rupture. The patentee states the bottle cap can be applied with very little force and can be easily removed by hand. He states also the material is of a character to compensate for changes in form of the lower section of the cap in its application to the bottle which would indicate it snaps into place in the groove shown.

The patent to Blakeslee discloses a cap to be applied to milk bottles provided with an elastic or yielding edge on the outside portion of the cap and refers to the natural elasticity of portions of the cap. He also states the turned-down portion 6 of the disk is "rendered elastic or yielding by oppositely disposed indentures 10." He describes the material as paper pulp which can be cast in a die. There is no definite statement that the cap can be snapped over the bead at the mouth of the bottle but in view of the analogy between the patentee's construction and that of appellant, it would doubtless snap on in the same way.

The Wright patent is not particularly pertinent as the cap, although made of sheet paper, was intended to be softened by heat and molded in place.

We believe the above discussed paper caps and especially
those of Ray and Blakeslee are particularly pertinent
136 and that the claims do not set forth a patentable improvement over these constructions.

The decision of the examiner is affirmed.

BOARD OF APPEALS

HENRY VAN ARSDALE
Assistant Commissioner

J W CLIFT
Examiner-in-Chief

C S SHAFFER
Examiner-in-Chief

May 22, 1940

Messrs. Wright, Brown, Quinby & May
53 State Street
Boston, Mass.

* * * * * * * * * *

141 Endorsed: U. S. Patent Office Board of Appeals
Jul 5 - 1940 Mailed

Appeal No. 33,132 OB

In the United States Patent Office

Before the Board of Appeals

Ex parte Carl W. Goodwin

Application for Patent filed December 19, 1936, Serial No. 116,705. Paper Article and Method of Forming It.

Messrs. Wright, Brown, Quinby & May for applicant.

On Request for Reconsideration

Appellant requests reconsideration of our decision of May 22, 1940, and calls special attention to our statement concerning the flange between the bead and the flange root being continuous about its circumference and whether the material is of a nature as not to crack under stress in applying such a cap to a container. We have been sent certain samples which show that appellant's cap as applied to a glass or other stiff receptacle may be snapped on even though the above noted flange is continuous about its circumference. We withdraw our statement in this connection.

However, this concerns only claim 7 and the other claims are broad enough to cover such flange being slitted. We have noted in the Ray patent (Figs. 1 and 2) a cap 142 having a continuous flange of this character and it seems clear from the description that the cap due to its own elasticity will contract to engage below the bead on the bottle. We believe, therefore, that claim 7 is properly met by Ray. We note also that Ray shows a compact paper bead spaced from the inner face of the cap.

For reasons stated in our former decision and above, we adhere to our decision as to the rejected claims. The request for reconsideration to the extent above indicated, however, is granted.

BOARD OF APPEALS

HENRY VAN ARSDALE
Assistant Commissioner

J W CLIFT
Examiner-in-Chief

C S SHAFFER
Examiner-in-Chief

July 5, 1940

Messrs. Wright, Brown, Quinby & May
53 State Street
Boston, Mass.

* * * * * * * * * *

149 Endorsed: U. S. Patent Office Board of Appeals Sep 18 1940 Mailed

Appeal No. 33,132 OB

In the United States Patent Office

Before the Board of Appeals

Ex parte Carl W. Goodwin

Application for Patent filed December 19, 1936, Serial No. 116,705. Paper Article and Method of Forming It.

Messrs. Wright, Brown, Quinby & May for applicant.

On Renewed Request for Reconsideration

Appellant again requests reconsideration of our decision of May 22, 1940, but after review of this petition, we believe it presents no new arguments for us to consider. Fig. 11 is another modification of the Ray patent.

The petition is denied.

BOARD OF APPEALS

HENRY VAN ARSDALE
Assistant Commissioner

J W CLIFT
Examiner-in-Chief

C S SHAFFER
Examiner-in-Chief

September 18, 1940

MESSRS. WRIGHT, BROWN, QUINBY & MAY
53 State Street
Boston, Mass.

* * * * * * * * * *

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CONTENTS

1. Application papers.
2. 2 Prints Dec. 24, 1936
3. Letter ÷ APR [illegible]
4. Req. for Reclass Sept 24/37
5. Ltd of Class'n Ex'r Nov. 17, 1937
6. Final ÷ Dec. 10, 1937
7. Amdt. A June 6, 19[illegible]
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20. REQUEST FOR RECONSIDERATION Aug 5/40
21. DECISION BY BOARD SEP 16 1940 {Ext. [illegible]}
22. Revoc. Power of Atty Jan. 2, 1941
23. Notice of Civil Action under Section 4915 R.S. — Jan. 3—1941.
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Put up for Action
Do not Hold Abandoned

1. This is an action under Section 4915 R. S. (U. S. C., title 35, sec. 63) in which plaintiffs seek to have the Court authorize the Commissioner of Patents to issue a patent containing claims 1, 2, 3, 4, 6 and 7 of the application of plaintiff Carl W. Goodwin, Serial No. 116,705, which was filed in the Patent Office on December 19, 1936, and entitled "Paper Article and Method of Forming It".

2. The subject matter of the claims is a paper cover for use on containers. The closure consists of a disk-like top portion having a downwardly extending flange at the periphery thereof and an inwardly extending bead on the lower edge of the flange. The paper of which the cover is made contains a water-resisting compound, such as wax. The bead portion is compacted and homogeneous. The cover is designed for use on a container which has a mouth slightly larger in size than the internal size of the bead on the cover and the container below the mouth thereof is slightly less in size than the mouth portion. The bead has enough
10 elasticity to allow it to pass over the mouth of the container and thereafter contract into snug engagement with the periphery of the container just below the mouth thereof. The claims refer to the cover as a snap-on cover. The bead portion of the cover may be either continuous or slitted.

3. The Flanigan patent, No. 521,788, of June 26, 1894, discloses a metal cap for bottles. The cap has a downwardly extending flange carrying an inwardly extending bead. The bead is disclosed as being either continuous or slitted. When the cap is applied to the bottle the bead passes over an enlarged lip on the mouth of the bottle and snaps into a groove just below the lip.

4. The Dingman patent, No. 853,775, of May 14, 1907, discloses a metal cap for bottles. The cap has a flange extending downwardly from its periphery and the flange is bent inwardly to provide a bead. The bead is slitted at several points. When the cap is applied to the bottle the bead

snaps over an enlarged lip at the mouth of the bottle and then contracts beneath the lip to hold the cap in place.

5. The Schmitt patent, No. 995,377, of June 13, 1911, discloses a milk bottle cap made of straw board which, according to the patent, may be paraffined or not. The bottle to which the cap is applied is provided with a shallow circumferential groove on its outer surface. The lower edge of the cap is provided with a downwardly extending flange having an out-turned portion at its lower edge. According to the patent, this out-turned portion provides material which
re-acts to seat the cap tightly in the groove.

11 6. The Blakeslee patent, No. 1,158,622, of November 2, 1915, discloses a bottle cap made of liquid paper pulp. The cap has a centrally arranged stopper portion adapted to enter the mouth of the bottle and a downwardly extending outer flange portion adapted to embrace the exterior of the mouth of the bottle. The flange is provided on its interior and exterior surfaces with indentures or slits extending partially through the thickness of the material.

7. The Wright patent, No. 1,603,057, of October 12, 1926, discloses a milk bottle cover made of sheet paper or other fibrous material which is impregnated with wax to make the cap waterproof.

8. The Ray patent, No. 1,153,518, of September 14, 1915, discloses several species of bottle caps made of paper. In the first species, which is shown in Figs. 1 and 2 of the patent, the cap, before it is placed on the bottle, is in the form of a disk having a downwardly extending cylindrical flange. After the cap is placed on the bottle the lower edge of the flange is upset and reformed to produce a thickened, inwardly extending bead portion. The upsetting and reforming operation will cause the bead portion to be in a compressed and homogeneous condition. The species shown in Figs. 3 and 4 of the Ray patent has a folded or crimped portion extending inwardly from the lower edge of the flange of the cap. The crimped portion may be distended to

pass over the enlarged lip at the mouth of the bottle and thereafter contract into snug engagement with the smaller portion of the bottle below the enlarged lip. In the other species disclosed in the Ray patent the cap has a series of crimps which allow the flange of the cap to be distended and pass over the enlarged lip of the bottle.

12 9. The plaintiffs, without any advertising, manufactured for sale and use the following numbers of paper covers for the years indicated:

Year	Number of Covers
1933	874,527
1934	984,710
1935	10,986,999
1936	10,099,490
1937	16,385,373
1938	33,343,233
1939	41,783,992
1940	48,508,257
1941	83,479,775
1942 (1st 3 mos.)	26,847,450

All of those made during the years 1933 and 1934, and for the most part of 1935, were snap-on covers for use on glasses. Those covers were as shown in Fig. 4 of the Goodwin application and as exemplified by the cover constituting a part of Plaintiffs' Exhibit No. 3, and also, during the latter part of the year 1935, some of the covers were for use on paper cups as shown in Fig. 3 of the Goodwin application. In 1936 some of the covers were made for glasses and the remainder for use on paper cups; these being respectively as shown in Figs. 4 and 3 of the Goodwin application and as exemplified by the cover constituting a part of Plaintiffs' Exhibit No. 3. In 1937 some of the covers were of the same kind as those produced in 1936, and the remainder were of the notched type as shown in Fig. 10 of the Goodwin application and as exemplified by the cover

constituting a part of Plaintiffs' Exhibit No. 4. In 1938 practically all of the covers were for use on paper cups as shown in Fig. 10 of the Goodwin application and as exemplified by Plaintiffs' Exhibit No. 4. During 1939 and from then on all of the covers were for use on paper cups as shown in Fig. 10 of the Goodwin application and as exemplified by Plaintiffs' Exhibit No. 4. From the beginning
13 of 1938 and thereafter all of the covers were of the
notched type as shown in Fig. 10 of the Goodwin application. The figures given for the year 1942 are for the first three months of that year.

10. It was not invention to modify the proportions of the cap shown in Figure 2 of the Ray patent by making the bead 5 of lesser inward extent so that it could without injury be passed over the lip 3 of the bottle. Such a modification of the proportions would be suggested by the Flanigan and Dingman patents.

11. It was not invention to modify the bead 6, shown in Figure 4 of the Ray patent, by making it of compacted, homogeneous, interfelted form, instead of crimped form, in view of the disclosure made in Figure 2 of the same patent.

12. It was not invention to provide slits in the bead of the Ray patent in view of the disclosure of slits in the Flanigan, Dingman, and Blakeslee patents.

13. It was not invention to impregnate the paper of which the Ray closure is made with a water-resisting wax compound, in view of the Schmitt and Wright patents.

14. Nothing recited in the claims set forth in the Complaint amounts to an invention over the prior art.

15. None of the claims set forth in the Complaint is patentable.

Conclusions of Law.

1. Plaintiffs are not entitled to the issuance of a patent containing any of claims 1, 2, 3, 4, 6 and 7 of the ap-
14 plication No. 116,705 of plaintiff Carl W. Goodwin.

2. The Complaint should be dismissed with costs against plaintiffs.

DANIEL W. O'DONOGHUE
Justice.

Apr. 22 - 1942

* * * * * * * * * *

15 *Judgment.*

This cause having come on to be heard and having been tried in open court and argued by counsel for the respective parties upon the pleadings and proofs adduced and submitted to the Court

It is ADJUDGED this 22nd day of April, 1942, that the complaint in this case be, and the same hereby is dismissed with costs against the plaintiffs.

DANIEL W. O'DONOGHUE
Justice.

Approved as to Form:
FRANCIS D. STEPHENS
Attorney for Plaintiffs.

* * * * * * * * * *

16 *Notice of Appeal*

Notice is hereby given that Carl W. Goodwin and American Seal-Kap Corporation of Delaware, Plaintiffs abovenamed, hereby appeal to the United States Court of Appeals for the District of Columbia from the final judgment dismissing the bill of complaint against the above-named defendant entered in this action on April 22, 1942.

FRANCIS D. STEPHENS
Attorney for Appellants, Carl W. Goodwin and American Seal-Kap Corporation of Delaware
1317 F Street, N. W.
Washington, D. C.

Washington, D. C.
May 18, 1942

Memorandum

May 18 1942

Cost bond ($250.00) of Plaintiff on appeal approved and filed.

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18 *Designation of Record*

Under the provisions of Rule 75 of the Federal Rules of Civil Procedure, the appellants Carl W. Goodwin and American Seal-Kap Corporation hereby designate the complete record and all the proceedings and evidence before the District Court as the contents of the record on appeal.

Two copies of the reporter's transcript of the evidence and proceedings in the District Court are submitted herewith.

FRANCIS D. STEPHENS
Counsel for Appellant
1317 F St. N. W., D. C.

Washington, D. C.
May 18, 1942

UNITED STATES
COURT OF APPEALS FOR THE
DISTRICT OF COLUMBIA

FILED OCT 2 - 1942

Joseph W. Stewart
CLERK

BRIEF FOR APPELLEE

In the United States Court of Appeals for the District of Columbia

Appeal No. 8295

Carl W. Goodwin and American Seal Kap Corporation of Delaware, appellants
v.
Conway P. Coe, Commissioner of Patents,
appellee

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA.

W. W. COCHRAN,
Solicitor, United States Patent Office,
Attorney for Appellee.

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In the United States Court of Appeals for the District of Columbia

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Appeal No. 8295

Carl W. Goodwin and American Seal Kap Corporation of Delaware, appellants

v.

Conway P. Coe, Commissioner of Patents,
appellee

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

BRIEF FOR THE COMMISSIONER OF PATENTS

This is an appeal from the judgment (79)[1] of the District Court of the United States for the District of Columbia dismissing the complaint (1) in which appellants sought to have the court authorize the Commissioner of Patents to issue a patent on the application (23–32) of appellant Carl W. Goodwin, Serial No. 116,705, relating to a snap-on cover for containers.

Claims 1, 2, 3, 4, 6, and 7 of the application (2) are here involved.

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[1] The numbers in parentheses throughout this brief refer to pages of appellants' appendix.

APPELLANTS' APPLICATION

Appellants' application discloses not only the paper cover but also a method and apparatus for making it. The claims, however, are only for the cover. The cover consists of a disk-like top portion having a downwardly extending flange at the periphery thereof and an inwardly extending bead on the lower edge of the flange. The paper of which the cover is made contains a water-resisting compound, such as wax. The bead portion is compacted and homogeneous. The cover is designed for use on a container which has a mouth slightly larger in size than the internal size of the bead on the cover and the container below the mouth thereof is slightly less in size than the mouth portion. The bead has enough elasticity to allow it to pass over the mouth of the container and thereafter contract into snug engagement with the periphery of the container just below the mouth thereof. The claims refer to the cover as a snap-on cover. The bead portion of the cover may be either continuous or slitted.

The claims have been held unpatentable in view of certain prior patents which will now be discussed.

The prior art

The Flanigan patent, No. 521,788, of June 26, 1894 (36), discloses a metal cap for bottles. The cap has a downwardly extending flange *b* carrying an inwardly extending bead D. The bead is disclosed as being either continuous or slitted. When the cap is applied to the bottle the bead passes over an enlarged lip *a* on the mouth of the bottle and snaps into a groove just below the lip.

The Dingman patent, No. 853,775, of May 14, 1907, (40), discloses a metal cap for bottles. The cap has a flange extending downwardly from its periphery and the flange is bent inwardly to provide a bead 6. The bead is slitted at several points 5. When the cap is applied to the bottle the bead snaps over an enlarged lip 2 at the mouth of the bottle and then contracts beneath the lip to hold the cap in place.

The Schmitt patent, No. 995,377, of June 13, 1911, (44), discloses a milk bottle cap 2 made of straw board which, according to the patent, may be paraffined or not (45, lines 90–93). The bottle to which the cap is applied is provided with a shallow circumferential groove 7 on its outer surface. The lower edge of the cap is provided with a downwardly extending flange 3 having an out-turned portion 4 at its lower edge. According to the patent, this out-turned portion provides material which reacts to seat the cap tightly in the groove (45, lines 59–74).

The Ray patent, No. 1,153,518, of September 14, 1915 (52), discloses several species of bottle caps made of paper. In the first species, which is shown in Figs. 1 and 2 of the patent, the cap 1, before it is placed on the bottle, is in the form of a disk having a downwardly extending cylindrical flange 4. After the cap is placed on the bottle the lower edge of the flange is upset and reformed (53, lines 43–52) to produce a thickened, inwardly extending bead portion 5. The upsetting and reforming operation will cause the bead portion to be in a compressed and homogeneous condition. The species shown in Figs. 3 and 4 of the Ray patent has a folded or crimped portion 5 extending inwardly from the lower edge of the flange of the cap. The crimped portion may be distended to pass over the enlarged lip at the mouth of the bottle and thereafter contract into snug engagement with the smaller portion of the bottle below the enlarged lip (53, lines 64–70). In the other species disclosed in the Ray patent the cap has a series of crimps which allow the flange of the cap to be distended and pass over the enlarged lip of the bottle.

The Blakeslee patent, No. 1,158,622, of November 2, 1915 (56), discloses a bottle cap made from liquid paper pulp (57, line 111). The cap has a centrally arranged stopper portion 7 adapted to enter the mouth of the bottle and a downwardly extending outer flange portion 6 adapted to embrace the exterior of the mouth of the bottle. The flange is provided on its interior and exterior surfaces with indentures or slits 10 extending partially through the thickness of the material.

The Wright patent, No. 1,603,057, of October 12, 1926 (61), discloses a milk bottle cover made of sheet paper or other fibrous material which is impregnated with wax to make the cap waterproof (62, lines 23–31).

SUMMARY OF ARGUMENT

I. Claims 1 and 2 on appeal are unpatentable over the cap shown in Figure 2 of the Ray patent, for no invention would be required to make the bead 5 thereof of less inward extent so that it could be removed and reapplied to the bottle. The caps shown in the Dingman and Flanigan patents also have beads so proportioned as to allow the cap to be operated in this manner and would suggest the necessary modification of the cap of Ray to allow it to be operated in the same way.

II. The limitation that the paper stock contains a water-resisting compound, which is recited in claims 3, 4, and 7, does not impart patentability to these claims since it is common to treat paper used for milk bottle covers in this manner, as the Wright patent, for example, shows.

III. Claims 6 and 7, which recite that the bead is formed in contiguously arranged segments, are not patentable over the Ray disclosure when considered with any one of the patents to Flanigan, Dingman, and Blakeslee.

ARGUMENT

I

Claims 1 and 2 (2) are considered unpatentable over the Ray patent (52–54). In Fig. 2 of this patent there is shown a bottle closure made of paper, having a marginal flange 4 adapted to engage over the mouth 3 of the container, and having a thickened bead portion arranged and produced in the manner recited in these claims. It is obvious that the bead of the Ray patent is in "compressed homogeneous seamless interfelted condition" in the same sense as appellants' bead is in this condition for the reason that both are produced in the same manner. While it is true, as pointed out in appellants' brief, that the bead is formed after the closure is on the bottle, yet there is nothing in claim 1 which avoids the patent.

Claim 2 recites the bead portion as "having an internal diameter so little less proportionally than the internal diameter of said flange adjacent thereto that said cover may be snapped on and off said receptacle without injuring said bead."

This is probably not true of the cap shown in Fig. 2 of Ray for the bead 5 as shown is so thick and extends inwardly so far that it probably would be ruptured if pulled over the rim 3 of the bottle. However, if the bead 5 were made smaller it could be snapped over the rim 3. To make this simple modification of the Ray closure would not require invention, for it is suggested by the Flanigan patent (36–38) and the Dingman patent (40, 41) and the lower court so found (78, Finding No. 10). In each of these patents the bead is so proportioned as to snap over the enlarged rim on the bottle mouth. The fact that the caps of these patents are made of metal does not preclude their being suggestive of a similar construction in a paper cap. Moreover, the idea of passing the bead over the enlarged lip on the bottle mouth is not foreign to the disclosure made in the Ray patent for in Figs. 3, 5, 7, and 11 the beads are formed by crimping the material to allow the cover to be applied in this manner. Appellants argue (Br. 10) that the crimped portion 6 of Fig. 3 would not appear as shown in Fig. 4 but would assume a vertically extending direction. But this is only speculation for appellant Goodwin testified that although he had experimented with caps he had not made one like that shown in Fig. 3 and tried to put it on a bottle as shown in Fig. 4 (21, 117 XQ). In the patent it is stated (53, lines 64–70) that:

> * * * It will be seen that as thus arranged, the mouth of the cap may be distended to pass over the bottle bead, and that thereupon it will through its own elasticity contract to engage below the bead and will thus hold it in place without "upsetting"; * * *

This statement obviously is intended to apply to all of Figs. 3, 5, 7, and 11.

On the basis of this disclosure the lower court held (78, Finding 11) that invention was not required to modify the bead shown in Fig. 4 of the Ray patent, by making it of compacted form instead of crimped form.

II

Claims 3, 4, and 7 (3, 4) recite that the bead portion contains wax or a water resisting compound. Ray does not state that the paper he uses contains such a compound, but it is common practice to use waxed paper for caps and the Wright patent

(60–65) discloses a milk bottle cap made of paper impregnated with wax (62, lines 3 to 22; 63, line 36 et seq.) The Schmitt patent also suggests the use of paraffined material for the making of a milk bottle cap (45, line 92). It is submitted therefore that the lower court properly found (78, Finding 13) that no invention was involved in using wax or other water resisting compound in the paper of which the Ray cap is made.

III

Claims 6 and 7 (4) additionally recite that the bead is formed in contiguously arranged segments. This feature obviously makes the bead more yieldable than if the bead were made continuous. This feature is not new, however, for it is shown in the Flanigan patent (36–38) and in the Dingman patent (40–41). Flanigan shows both the continuous form and the segmental form and states (38, lines 8–14) that the segmental form "gives a somewhat greater range of vertical elasticity and enables the device to conform more readily to inequalities in the vertical thickness of the lip-flange or of the sealing disk located within the cap as well as a wider range of elasticity in a lateral direction." To apply to a paper closure a feature old in metal closures did not, it is submitted, require invention. Moreover, the Blakeslee patent (56–58), which relates to a cap made of paper pulp, discloses internal and external cuts 10 extending partially through the thickness of the flange 6 on the closure for the purpose of rendering it elastic or yielding (57, lines 96–102).

In view of these patents the lower court found (78, Finding 12) that the provision of slits did not involve invention.

CONCLUSION

On the whole it seems that all that the appellant did was to apply to a paper closure certain features old in metal caps, without the attainment of any result which would not have been obvious in advance. It is submitted that he merely modified the Ray closure in a manner which was within the skill of the calling and accomplished only a result plainly indicated by the prior art. *Altoona Publix Theatres, Inc.* v. *American Tri-Ergon Corp.*, 294 U. S. 477; 55 S. Ct. 455.

It is submitted that the judgment of the lower court should be affirmed.

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